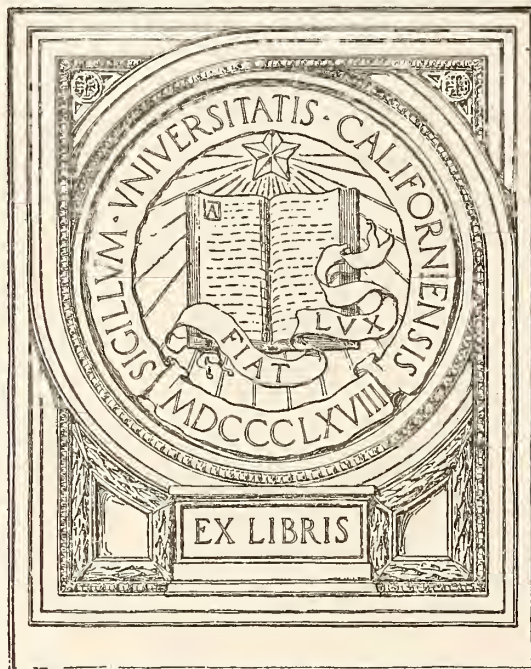


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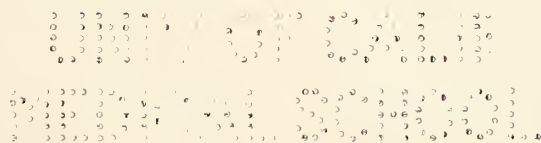
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EDITORIAL NOTES AND COMMENT

A NEW YEAR'S RESOLUTION

The seasonal urge for reflection and resolution seems inescapable. We all share the common feeling of mingled pride and regret, of hope and anxiety when we lay aside the old to begin the new. New Year's Day seems always to offer a new start, to bring a new deal. This experience ever retains some of the lure of an unexplained trail, the charm of a first adventure.

Peculiarly fitting are reflections and resolutions at this time. Colorado Medicine is now in its twenty-fifth year. A quarter of a century of medical history is being completed and the books for this period will soon be forever closed. Now better now worse, from month to month the Journal has attempted to record the thoughts and deeds of the members of the Society. Our pride of accomplishment is dampened by regrets a plenty.

But this is not solely an editorial wail. Our worst failures have been our inability to stimulate the regular cooperation of members and constituent societies. On the first page of Volume 1, Dr. Edward Jackson, our first editor, in a foreword to this new journalistic effort, pointed out that it was a society project to which every member should contribute. Then with characteristic sagacity he remarks that "It is not profitable

to make promises and waste good space in proclaiming plans." On page 370 of the same volume, after a year as editor, he concludes as follows: "The greatest thing the journal of a state medical society can do is to stimulate and build up the county and local societies. The first point is to obtain reports of these societies. If such reports can be obtained and published they will certainly improve as time goes on. Practice in reporting will be assisted by a spirit of emulation among officers who prepare such reports. The knowledge that the reports will be read by physicians all over the state will stimulate the members to do their best in the way of papers and discussions. And the effort to do one's best always renders possible something still better than he has been able to do before."

In this opinion probably all subsequent editors and officers of the society concur. But as concrete evidence of the yawning chasm between what is and what should be, turn to the section captioned "Medical Societies" and observe the conspicuous absence of such reports. In the year of our Lord, 1928, we agree with the opinion of Dr. Jackson as expressed in 1903. It is our New Year's resolution to bring this matter to the attention of secretaries of the county and other medical societies. While we shall be glad to publish state papers and such other manuscripts as are approved by the publication committee, our greatest effort will be to induce regular cooperation of medical societies in the matter of monthly society reports and news items of its members.

SOCIAL ECONOMY OF MEDICINE

In 1924 Dr. Walter H. Hamilton, Professor of Economics in the Robert Brookings Graduate School of Economics and Government, suggested that Harry H. Moore, Public Health Economist of the United States Public Health Service undertake a study of the social aspect of medicine. As a result of that suggestion and with the aid of other officers of the United States Public Health Service, this layman to medicine but professional economist has just had published a stimulating book entitled *American Medicine and the People's Health*. He begins his first chapter by asking the following thought-provoking questions:

"What is the explanation of the fact that in one of the largest cities in the United States a majority of tonsillectomies are charity cases? Why were there 100,000 cases of smallpox in the United States in 1921, when this is a preventable disease? For what reason are some 15 per cent or more of confinements attended by midwives, a large proportion of them illiterate and superstitious? Why is adequate, scientific, medical service available, in the main, only to the poor and rich? What should be done regarding the universal tendency of physicians to abandon rural districts in favor of cities? Why is it that only 337 of the 2,850 rural counties of the United States maintain health departments with whole-time health officers? Has the rapid growth of clinics since 1910 been salutary? Should the functions of the state in the field of medicine be curtailed or extended?"

The entire book attempts to show the reasons for such mal-adjustments, the attempts that have been made to correct them and the probable future of organized medicine. While we may not agree with the views of this health economist in matters of medicine, we cannot fail to appreciate the increasing importance of statesmanlike consideration of this important problem. Despite the success of medical practice as viewed either from the standpoint of physician or the public, only the most stupid will claim that all is well. As we have frequently contended medicine has reached a stage of develop-

ment where its proper social adjustments has more to offer in the people's health than does the probable future discoveries of scientific research. The economic stress of the world war forced the panel system upon the English profession and people. Economic conditions and an appraisal of the facts of American medicine and the people's health may gradually but just as surely force a similar deadening experiment upon us. The need of the hour seems to be no less science but infinitely more wisdom in the problems of social medicine.

Successful physicians view state medicine with justifiable alarm but the questions of Mr. Moore seem insoluble on the basis of our present individualistic system. Certainly there is a middle road. We may perchance miss it entirely. We may choose "pot luck" and wait for it to evolve or we may, by taking thought now, stake out its future course. In lieu of certain expressed anxiety regarding the encroachment of social agencies on the practice of medicine in certain Colorado cities, we believe this contribution of a public health economist will prove interesting.

"Why Men Fail"

This is the title of a notable series of mental-hygiene articles appearing in the New York Herald-Tribune every Sunday for fourteen weeks and syndicated to twenty other newspapers in different parts of the country. The series was arranged by the editor of the magazine section of the Herald-Tribune in cooperation with the American Medical Association and the American Psychiatric Association, and has been planned as a popular presentation of some of the mental mechanisms and principles underlying problems involving human happiness and efficiency.

Among the contributors are Dr. William A. White, Washington; Dr. Karl A. Menninger, Topeka; Dr. Douglas A. Thom, Boston; Dr. Arthur H. Ruggles, New Haven; Dr. Anita M. Muhl, Washington; Dr. George K. Pratt, New York; Dr. Smith Ely Jelliffe, New York; Dr. Menas S. Gregory, New York; Dr. H. D. Singer, Chicago; Dr. Frankwood E. Williams, New York; Dr. Herman Adler, Chicago; Dr. Morris Fishbein, Chicago.

Sex, wives as causes of failure, depressions, physical handicaps, the first job, why women fail in business, emancipation from the family, drinking, vocational misfits, the "grouch," the "hard-boiled" man, the day dreamer, are among the subjects discussed in these articles.—*Mental Hygiene Bulletin*.

The lowest temperature ever officially observed in continental United States occurred a few winters ago at Fort Keogh, near Miles City in northeastern Montana, when the thermometer dropped to sixty-five degrees below zero.

THE RENAISSANCE OF SURGERY IN EUROPE TOWARD THE CLOSE OF THE MIDDLE AGES*

ALFRED BROWN, M.D.

OMAHA

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There are many interesting periods in surgery from which to select, and tonight I have chosen to speak about a period that represents the very start of what we may call "modern surgery". It begins with the time when surgery moved, and medicine moved, from a so-called Pagan country and a Pagan people, back again to a Christian land.

In order to get a proper perspective we must go back a bit and review rapidly a few preceding events. After the fall of the Roman Empire in the Fifth Century, science and art moved away from the continent of Europe over to northern Africa, and that part of the world we now know as the Near East, into the country which was ruled by Mohammed, and a school of surgery arose which has been called the Arabian School. Europe was plunged into the Dark Ages. The people were entirely under the domination of the church organization, not yet truly Christian in its actions; and the then idea of that organization was to keep the control of all science, of all knowledge, and even of reading and writing, in the hands of the rulers of the countries, who were then as always the high powers in politics. Consequently, all the sciences, and especially that of medicine and surgery, superseded by medieval mysticism, sank into temporary oblivion on the continent. What little knowledge there was in other parts of the world passed into the hands of the Arabians and Syrians who nurtured it for many years. They did not make many improvements but held what they could of it intact for future use until the time when it again crossed the Mediterranean Sea into Europe. We have a record of a few of these men of the Arabian School, but we do not know much about them because these records are so fragmentary.

In the Ninth Century a member of the Arabian School, Rhazes, was one of the

greatest minds in surgery in the world. He evidently did quite a bit of writing, and some of his work has come down to us. Another was Haly Abbas. His work was saved in manuscript form, translated years later and printed in 1523 A. D. Haly Abbas in the title page of the printed work, is shown in the center, with Hippocrates on one side, and Galen on the other. Here is shown the influence of Hippocrates and Galen and the fact that their work formed one of the basic elements of Arabian surgery. At a little later date, in the Tenth Century, Albucasis lived. He was the greatest surgeon of the time. He was the first man that we know of who illustrated instruments. The instruments that he shows are the different forms of hooks that he used to pull out foreign bodies, the different types of cauteries, puncture needles, the bleeding vessels into which the blood flowed when patients were bled, and bleeding was one of the most frequently used forms of treatment. The cautery also was supposed to cure about everything, and what the cautery could not cure, bleeding was presumed to, when it did not kill. The actual cautery was made of different materials. Steel worked differently than copper and silver, silver worked differently than copper, and copper worked differently than gold, and as the difficulty of using the instrument increased, the efficacy was thought to increase also.

The Arabian School carried on surgery up to the Tenth and Eleventh Centuries. At that time the makeup of the world was about as follows. Europe consisted of England, France, middle Europe, Italy and extended over to Constantinople. There was constant feud and constant warfare, not only among the individual nations themselves, but also with that part of the world ruled by Mohammedan power. This included first Spain, then passed over into western Africa, sweeping east through northern Africa, through Carthage, over to Alexandria, into Egypt and the Near East, and

*Delivered before the fifty-seventh annual meeting of the Colorado State Medical Society, Glenwood Springs, Colorado, Sept. 6, 7, '8, 1927.

Tartars swept down and took Bagdad. That was the end of Arabian domination of science.

In the meanwhile, three things happened. On the west, through Cordova, by means of the Jewish physicians who were passing northward and eastward into France, some of the Arabian surgery was being carried into Normans, and Charlemagne.

In the central portion a very important thing occurred. In the early part of the Eleventh Century a man by name Constantine called the African, was born in Carthage in northern Africa. Constantine was a student and spent many years not only learning what he could of surgery and medicine in Carthage, but also went east to Alexandria and into the Near East and down into Egypt, and learned what he could of the surgical practice of these countries. He was the first man who made a regular clinical tour. He came back to Carthage and started to practice, but found that he could not get very far, for he could do a great deal more than most of the surgeons there. Consequently, so the legend goes, he was driven out on the ground that he was a sorcerer. In fear of his life he fled from Carthage to Sicily and there entered the army as a surgeon. Later he went to southern Italy, to Salerno, where in the Ninth Century the famous School of Salerno had been founded. There he began to teach, but did not have much more success than he did in other places, for he differed much from the then current ideas, and he was not a cleric. The upshot of it was that Constantine took holy orders and went over to the Monastery of Monte Cassino and there began to translate and write. To him we owe the greater part of what we know of Arabian surgery and of the surgery of the late Greco-Roman period. Constantine was a transcriber; he knew Arabian and all of its dialects, and translated all of these things into Latin—according to some historians, not very good Latin. With all its faults, for several hundred years, the work of Constantine ruled the medical and surgical worlds as authoritative.

We are liable to think that these ancient people did not know a great deal but, as an

example, a short time ago I was reading the work of Paul of Aegina who lived either in the Fourth or the Seventh Century, or sometime between these dates, and I found a place in which he describes tumors of the neck. He says that they are sometimes on the side of the neck, and sometimes in the middle. He describes operations and says concerning the major struma in the center of the neck, after making the incision we lift up with hooks and carefully separate away the part to be excised from the tissues surrounding it, and remove it, and take great care not to injure either the arteries, which are known as the carotids or the recurrent nerves. This is rather advanced knowledge for the time.

The best collected edition of the works of Constantine is found in the works of Isaac. This was published in the early part of the Sixteenth Century; and on the title page Isaac is placed in the center with Haly Abbas on one side and Constantine on the other. In these ancient works the same thing will be found repeated over and over; one man taking an idea from another and carrying it a little farther. The only portrait known of Constantine is in a Fifteenth Century manuscript, in an illuminated letter. He was a Moor, and this is the only record we have of what he looked like, if this is really like him. Constantine began to teach in Salerno, and later in Monte Cassino. The school of Salerno was founded, a result of the Norman Conquest, and Charlemagne is supposed to have helped it.

After Constantine, medical and particularly surgical work, progressed rapidly. He was followed by a surgeon named Roger of Salerno, or Roger of Parma, who lived about the Twelfth Century. His work, known as the "Post Mundi Fabricam," is one of the most famous medical works in the world. Roger went back to first principles for he starts his work with the creation and after he completes that goes on to say what he has to say about surgery. He frequently employed bleeding and his work concerning the correct methods and the reason for curing by the letting of blood, was printed centuries later in 1597. He discusses the ideas of Hippocrates and those of Galen,

which were diametrically opposed, and tried to harmonize the two.

The School of Salerno thus gained a good deal of prominence about the time that Constantine reached it, but there was a still more important influence at work toward the determination of surgical knowledge back to the continent of Europe. The church organization dominated the European world. Its members were the only intellectual people and were the only people who could rule. The only other class that had any power at all was that composed of the Knights. The Knight did the fighting, and the intellectual man told him how to do it. In the early part of the Eleventh Century a wave of pilgrimage, of people going to Jerusalem to visit the sepulchre of Christ, swept over the world, and these bands of pilgrims passed across northern Europe to the south-east and reached the Near East either by way of Constantinople, or by sailing across the Mediterranean Sea. When they reached the Holy Land they frequently came in conflict with the Mohammedan pilgrims on their way to Mecca, and with the Mohammedan people. Consequently these conflicts growing a little bit more prominent, the idea was born in the mind of the cleric to recapture the sepulchre of Christ, and in 1095 the first crusade began. These lasted until 1270. There was a good deal of blood shed, but several things of value occurred. In the first place, large bodies of troops had to have physicians to go with them. Peculiarly enough they picked out the most intelligent and the best physicians in Europe at that time, who were mainly of the Jewish people. They brought them from southern Spain and attached them to the crusaders. Secondly, they had to have ports of embarkation and ports of debarkation. These were largely picked out from the watering places, and consequently the great army hospital was placed at Salerno. The ships sailed from there, and the wounded were brought back to Salerno. By going through and living in the Eastern countries the soldiers learned of what the Arabs were doing, and brought back with them stories of their great hospitals. These stories engendered a spirit of emulation and Europe began to awaken.

The School at Salerno was founded for all classes of people. Originally, there were four distinct parts. There was a Jew, Elinus; an Arabian, Adala; a Greek, Pontus, and a Latin Magister, Salernus. These men founded a medical school, and held examinations after the students completed their course. Roger, the grandfather of Frederick, passed laws that men had to pass examinations to become surgeons; and those surgeons were divided into two classes: First, the ones who could understand Latin, who took a year in the university in science and philosophy, and subsequently another year in anatomy and surgery; and second, those who did not read Latin and took a lesser course. If the man understood Latin, he became a surgeon of the first class, and if he did not, he became a surgeon of the second or lay-surgeon. This influence reached northern Europe, and the great University of Paris, and the still more important University of Montpellier were founded with definite rules and regulations, and a definite course of study. One of the great Italian surgeons helped along the teaching in France, Lanfrancus of Milan who had been taught in Salerno, and in Bologna, went north and joined the faculty at the University of Montpellier. He trained a group of surgeons whose names have come down to us as the great surgeons of their times. Probably one of the greatest was Henri de Mondville. He was graduated at the University of Montpellier, and later taught there.

About this time the idea that there should be still further restrictions to surgical practice became general and the first organization of surgery was attempted, for surgery was being done by everybody. Most of it was done by traveling mountebanks, itinerant surgeons, who operated here and there and all over. As long as they got good results they were considered competent; but as soon as they lost a few patients they were gone. They had a few wagons and horses with which they moved on, and men of this type carried on their work in this way until the Eighteenth Century. To try and change this condition of affairs two things were done: The first was to divide surgeons into definite types and definite classes. Jean

Pitard, with the consent of the then French King, St. Louis, founded a college of surgeons. It was named at first after Saint Cosmas and Saint Damianus, who were Christian physicians and martyrs of the Fourth Century. Later the college took the name of St. Côme only. In the college a candidate was required first to take two years in sciences, the arts and philosophy, and follow this with two years in surgery. If he then passed an examination successfully he was made a Fellow of the College of St. Côme, allowed to wear a long robe and sworn in as a master surgeon. He thus became a surgeon of the long robe, in contradistinction to those who wore the short robe and were not allowed to do certain things. The Barber surgeons who, naturally, objected to the college, were joined in their objection to it by some of the medical men, and the war between the two waxed fast and furious, until the Eighteenth Century. Henri de Mondeville, who became a member of the college, tried to smooth out some of the difficulties between medical men and surgeons by explaining the need of surgery as a specialty. He writes: "But as it is not possible to know a part perfectly, if one does not at least know the whole in a general way, it is impossible to be a good surgeon if one does not know the main principles and generalities of medicine. As it is impossible to know the whole perfectly, if one does not in a certain measure know each one of its parts, it is impossible for one to be a good physician, who absolutely ignores the art of surgery." That was written probably the latter part of the Thirteenth Century. Another thing which had a great deal to do with the betterment of surgery, was the edict which was handed down as a result of the influence of the College of St. Côme. Emperor Frederick, the 2nd, allowed the dissection of one body every five years, so that more could be learned about anatomy. We must remember that up to this time no human dissection had been allowed since the time of Aristotle and Alexander the Great. It was absolutely against the law of the Moslems, who were for centuries the most powerful people in the world, and though the Christians were willing to sacrifice their

bodies for their ideals, they absolutely refused any mutilation of the body after death. In fact, the great majority of the well born people, the knights and the warriors who went to the east during the crusades, in order to avoid dissection of the body, ordered that if they were killed their bones were to be boiled and returned back to their native country that they might not be buried in Pagan soil. Many of them passed through Salerno on the way back and we may surmise that some of them did not get any farther, because at this time a few pictures of the human skeleton began to appear.

Surgery thus developed first in Italy and in France. In England little had been done. John of Gaddesden had written a book, and Gilbertus Anglicus had followed suit, but it remained for a surgeon of England, John Arderne, to go over to the schools of Montpellier and Paris to learn surgery. We are indebted in great part for what we know of John Arderne's work, to a manuscript which was found a few years ago in the Imperial Library in Stockholm. It was written in 1412, after his death. It is very beautifully preserved and has been transcribed by Mr. Eric Millar, M.A., and translated by Sir D'Arcy Power of London. John Arderne is probably the first man to illustrate the pathological lesion in his manuscript. *Albucasis* illustrated instruments. There was an occasional anatomical picture in the old Persian manuscripts and some obstetrical drawings, but so far as illustrating the lesion itself there was none up to the time of Arderne. He devoted himself largely to rectal work, and originated the operation for fistula which is being done today.

Arderne was followed by a French surgeon, who is known as the father of modern surgery, Guy de Chauliac who lived in the Fourteenth Century. He was a most accomplished writer as well as surgeon and summed up the different types of individuals doing surgery up to his time. Guy de Chauliac, in great measure, prevented bleeding by the use of the ligature. His surgery was real surgery. He was not a great operator, but he did do good dressings. Today it is the general impression that Paré orig-

mated the ligature, but it was known in the time of Celsus. Guy used it frequently. He operated for many things—goitre and empyema among others.

He did some intestinal suture work. He operated for the removal of stone, and he operated under anaesthesia. He used in his work, copied from that of Hugo of Lucca, as a formula for his anaesthesia, opium, hemlock and mandrake, and in this he put a sponge and kept it there until the sponge became saturated. When it was dried he put a little water on the sponge and to induce anaesthesia placed it over the patient's nose and mouth, and when they were asleep he operated. When through he would wake them up by having them inhale vinegar.

In the 15th Century John Gutenberg of Mainz made a most wonderful discovery: printing from movable type. Upon this most of our present knowledge rests, because it gives everyone the opportunity to learn from the works of others, and once and for all did away with the autoeracy of class so far as knowledge is concerned. John Gutenberg printed the Bible, probably using movable type for the first time, and, this discovery made the knowledge of the world free to anyone who chose to learn to read. Soon after the Bible, medical works began to appear. The first wood cut known of an anatomical dissection is in a book by Bartholomaeus de Glanvilla, a very interesting old medical work; and also in the same work the physician and the apothecary visiting the patient are depicted—the apothecary bringing medicine to the physician. At a little later period the so-called wound man appeared in German manuscripts and books and from these illustrations the artist who made the drawings for Jerome of Brunswick's Wound Surgery evidently got his idea. Jerome of Brunswick's Surgery was published in 1497, and the Spanish book was printed in 1491. Through the work of the anatomists surgeons obtained some idea of the human skeleton, one of the first of which was the so-called Helain skeleton, which was subsequently elaborated and made more correct by Jerome of Brunswick and

others. The skeleton published by Hans Von Gerssdorff, known as the Wechtelin skeleton appeared a few years later. These skeleton illustrations are the result of the dictum of Frederick who allowed surgeons to have one dead body to dissect every five years, the body to be that of a criminal.

One of the first illustrations to appear in surgical literature in the late Fifteenth Century when printing came into vogue, was that of the zodiac man with the various parts of the body attributed to the signs of the zodiac. Gradually the zodiac man was replaced by "the wound man" which depicted the different types of wounds and implements causing them. This originated in the work of John Arderne, in which he illustrated a leg bitten by a dog, a scorpion attacking a foot, and a snake also biting a foot. This was later enlarged into an illustration of the whole man. In one of the wound men from a German manuscript; in addition to the different types of wound, there is an anatomical drawing of the open abdomen, showing the stomach and intestines. In 1497, at Strassburg, the famous surgery of Jerome of Brunswick was published with its title page showing the wound man. Brunswick traveled about the country giving clinical demonstrations to students, attached to no medical school, but teaching surgery, and in the meanwhile serving as an Alsatian war surgeon. He shows the bandage, the tourniquet, salves, etc. He shows the methods of application of the hands in examination of a fracture. He illustrates a compound fracture of the leg, with the tibia coming out from the wound. His treatment was the reduction of the fracture using the table of Hippocrates, for Hippocrates invented a very excellent and efficient fracture table. After reduction he holds the fragments in place by splints. He had very good instruments for prying out pieces of bone, excellent syringes, scalpels, hooks for removing foreign bodies and other types of instruments which he illustrates. Finally he shows the way the surgeon's table should be arranged; with the saw, and the different types of pries, forceps, cauteries, etc.

Hans Von Gerssdorff, another German surgeon, gives in his book, "The Field Book of Surgery," the first illustration of an amputation. The sponge which has evidently just been taken away from the patient's mouth is shown and the patient is represented as asleep. The tourniquet is placed above the wound, although we see the blood spurting out from two holes. The surgeon is still wielding the saw. Hemorrhage is controlled by transfixing the vessels with a needle, and then tying the thread around the vessel, with subsequent removal of the thread by slight traction repeated daily. The stump with a mass of dressings over it was then put into the bladder of a pig or cow which was allowed to dry and exerted even compression to the entire stump. Von Gerssdorff says that he had done between one and two hundred amputations.

Brunswick's work was translated and became the first illustrated surgery printed in the English language. It was the predecessor of many others, and served as the book from which that great row of English surgeons, beginning with Vicary and ending in the early Seventeenth Century with William Clowes, obtained their inspiration and by their work revolutionized the surgery of

England. It started, if you will, the printing of surgery in the vulgate. Up to that time all surgery had been printed in Latin which only a few people could read and understand. Brunswick and Von Gerssdorff wrote and printed their work in the vulgate and thus made their knowledge available to a much larger audience.

These men of the middle ages performed their daily tasks as they came to them, and put their methods down on paper, that all might follow. They were not bound by tradition but cast aside the ideas of their predecessors when they were proven faulty and acted according to their own lights. We can trace their like to the present time. They had a problem to deal with which was then new to all surgeons, the problem of the gunshot wound, the problem of the wound caused by powder and shot, as contrasted to the wound made by the lance, the arrow, the hatchet, the mace and the club. They did their work, and they improved it constantly. They developed a system of treatment which, if you will study it, was rational. They were the originators of our modern surgery, and to these men and their work we owe a debt we can never measure.

THE MECHANISM OF THE FORMATION OF HYDRONEPHROSIS AND HYDRO-URETER*

WILLIAM M. SPITZER, M.D.
DENVER

It has become a habit to assume that the movement of urine from the kidney pelvis to the urinary bladder is accomplished by gravity; and thus it has been tacitly accepted that if a kidney drop from its position so that the urine has to travel up hill to leave the kidney pelvis, this would be so difficult of accomplishment that eventually the pelvis would tire of such effort and fail to empty itself, with the result that dilatation of the kidney pelvis would ensue. Likewise, kinks, curves, angulations, high insertion of the ureter, aberrant vessels crossing the ureter, valve formation at the uretero-pelvic junction, etc., are supposed

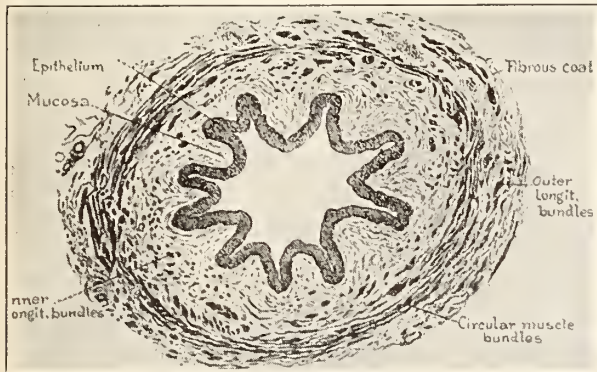
to hinder the progress of the urine in its journey from the kidney pelvis to the bladder, and thus cause hydronephrosis.

For a proper understanding of the pathogenesis of hydro-ureter or hydro-nephrosis, a clear-cut conception of the manner in which the urine normally moves from the kidney pelvis to the urinary bladder is necessary; and to understand this process a knowledge of the anatomic structure of the kidney pelvis and the ureter, together with a study of the nervous mechanism of these structures, is demanded.

Reviewing the minute anatomy of the kidney pelvis and the ureter we find that this is one structure, with no real anatomic or histologic difference between the two, and

*Read at the fifty-seventh annual meeting of the Colorado State Medical Society, Glenwood Springs, September 6, 7, 8, 1927.

we may therefore consider them together. The pelvis and ureter is a tube dilated at its upper extremity to make a reservoir or bladder. This tube is lined with mucous membrane from one end to the other, the epithelium of which varies according to whether it acts as a reservoir or merely a conducting tube. Outside of this mucous membrane is found musculature, which may be distinctly identified in three different layers, namely, an internal longitudinal, a circular, and an external incomplete longitudinal layer. Outside of this musculature is found a fibrous coat so loosely enveloping the entire structure that it in no way interferes with peristalsis. This musculature is greater in proportion to the entire thickness of the tube than is found elsewhere in the body for the same amount of work or propulsion. (Fig. 1.)



Because the function of this tube is to deliver small quantities of urine which have collected in its dilated upper extremity to the urinary bladder, and to do this as soon as such quantity of urine is worthy of delivery, the nervous mechanism is quite perfect and this tube is found richly endowed with filaments from the renal, the inferior mesenteric, the spermatic or ovarian, and the hypogastric plexuses of the sympathetic nervous system. Within the walls of the ureter are to be found both medulated and non-medulated fibers and ganglion cells, these ganglion cells being found in greatest numbers near the upper and lower ends of the ureter. This rich nervous supply is, of course, for the purpose of furnishing strong autonomous rhythmic contractions whenever these are needed to empty the pelvis and ureter.

If, therefore, an individual were lying flat, or even with his head at a lower level than his feet, so that the urine had to be propelled upward to the bladder, dilatation of the pelvis or ureter would never result, and therefore gravity is no factor in this movement of urine from the kidney to the bladder. Furthermore, if there were kinks, angulations or curves, or if there were pressure from without, dilatation of the pelvis or ureter could not result if this nervous mechanism, this musculature, and this mucous membrane retained their intrinsic perfect health and intrinsic working efficiency, until such time as the obstruction became too great for the power behind it to still force all the fluid past such obstruction. There would still go on under any of the above conditions, when sufficient urine collected in the dilated upper end of the ureter, commonly known as the pelvis, a rhythmic contraction beginning at the upper end and ending at the lower or vesical end, as always.

It is then obvious that for a pathological dilatation to ensue in such a viscus—

(1) An injury must be caused to either this musculature or the nervous mechanism.

(2) Or that it would be necessary to so constrict the tube, either from within or without, that the musculature would not be strong enough to push the water past such obstruction.

(3) Or to create a back-pressure from the lower reservoir (urinary bladder) as a result of damaged uretero-vesical valves, which back-pressure would have to be so great that the ureteral musculature could not overcome it, and this latter is equivalent to constricting the lumen of the tube.

Before considering how such a dilatation happens as a result of one of these three causes, it would be wise to consider what hydronephrosis has been attributed to until recently, to discuss these theories, and to dispose of them.

The earliest modern conception of the etiology of hydronephrosis was as follows: that a kidney became loose and dropped from its position; while the kidney pelvis and the extreme upper portion of the ureter dropped with the kidney, that portion of the ureter below the uretero-pelvic-junction remaining

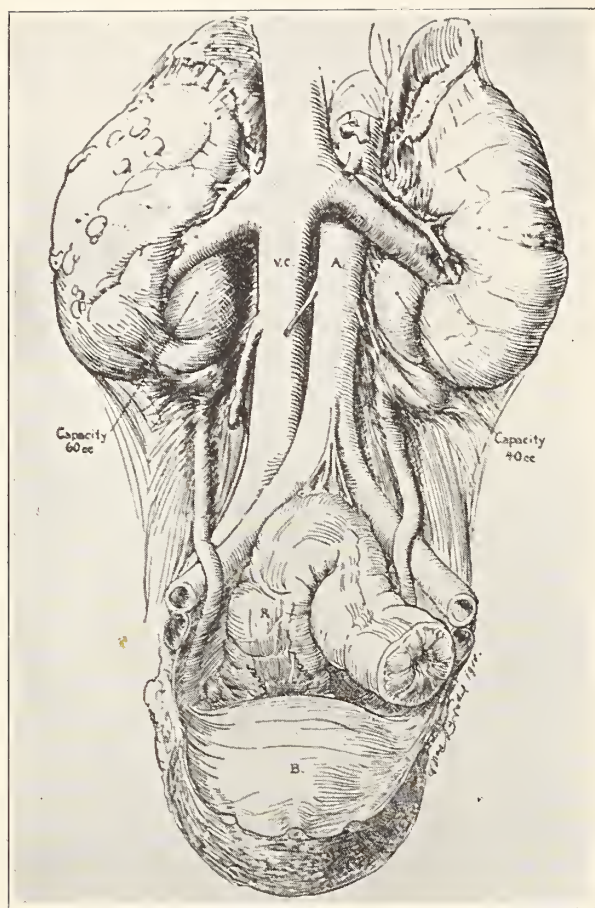


Fig. 2

fastened in its previous position, the ureter thus became angulated. Since the urine had to flow up hill from the kidney, and had to flow past this angulation, dilatation of the kidney pelvis followed. (Kelly & Burnam—*Diseases of the Kidney and Ureter*. (Fig. 2.)

Movable kidney occurs in 20 per cent of all women and 2 per cent of all men; the mobile kidney appears on the right side seven times to one time on the left and to two times in both kidneys.* If, therefore, mobile kidney caused hydronephrosis it would occur ten times as frequently in women as men, seven times as often on the right side as on the left, and practically twice as often in both kidneys as on the left. As a matter of fact, it is barely twice as frequent in women as in men, is just as frequent on the left side as on the right, and when it is bilateral, the kidneys are rarely movable; and it is very rarely bilateral. The question of whether the urine can be moved up hill without causing dilatation has already been discussed, and the question of the angulation of the ureter and its influence on dilatation above it will be taken up later. This par-

ticular angulation, as a result of the dropping of the kidney, would not remain an angulation if there were any pressure behind it, because nothing supports the ureter at the spot where it remains fixed; it remains so fixed only because the kidney has dropped a certain distance and no more of the ureter is needed to travel with it than what it took. The ureter at this spot is really not fixed, but on the contrary very movable. For the past two decades it has been gradually dawning on the profession at large that where hydronephrosis and abnormal mobility of the kidney co-exist, the abnormal mobility is due to the hydronephrosis, and not the hydronephrosis to the abnormal mobility; these ideas are well expressed by Henry Morris and James Israel in their works on the subject. Where the kidney has left its bed, it is the consensus of opinion, this occurs because the kidney does not fit the kidney niche properly. Therefore, if a kidney did fit the kidney niche, and become enlarged for any reason, whether because of hydronephrosis, tumors, or what not, it would no longer fit its niche, and would then of course leave such niche, and drop. In this fashion hydronephrosis causes loose kidney. Inflammatory changes in the kidney pelvis and ureter, as will be explained later, are always present where dilatation is found together with loose kidney, and such pathology is not present in mobile kidney without hydronephrosis. From these two facts a conclusion will be drawn later. At present, it may safely be said that loose kidney never causes hydronephrosis.

The next erroneous idea is that obstruction to the outflow of urine is frequently caused by pressure outside the ureter, such as would be produced by seminal vesiculitis, cancer of the cervix uteri, pyosalpinx, the gravid uterus, or any other condition which might cause pressure on this tube. Such idea probably arises from the fact that, post hoc ergo propter hoc, dilatation of the ureter exists, there is pressure from the outside, and so this pressure must be the cause of the dilatation. It is true that dilatation of the ureter is frequently met with in seminal vesiculitis; but, not only is there, in this case, a pressure on the ureter but the ureter



Fig. 3. On the right appears the kidney whose ureter was kinked over a silk ligature. On the left its fellow. Removed six weeks after operation. It will be noted that both pelves are exactly the same size.

and the trigon of the bladder is found to be involved in this inflammatory process, and the muscular structure of both ureter and bladder is damaged. Careful investigation of dilatation of the ureter where cancer of the cervix has extended into the broad ligament so as to cause pressure on the ureter, discloses the fact that the muscular structure of the ureter is damaged, the ureteral wall being invaded by cancer cells or inflammatory process, as the case may be. Careful search in these cases of dilatation, presumably from outside pressure, generally discloses accompanying disease of the ureteral musculature, although this pressure from the outside, must undoubtedly, be an occasional cause of hydronephrosis.

We come now to the claim that aberrant renal vessel causes hydronephrosis. If a kidney, the possessor of an aberrant vessel to its lower pole, drop to a position below its normal bed, since the lower pole and the vessel attached thereto must move downward with this organ, the ureter cannot kink itself over this vessel. It is evident that for such a kink to occur, when the aberrant vessel runs behind the ureter, the lower pole will have to move upward in a forward arc, the posterior pole moving downward in a backward arc, the kidney finally coming to rest with its lower pole pointing toward the

anterior abdominal wall and the upper pole pointing toward the posterior abdominal wall, thus placing the long axis of the kidney horizontal when the subject is in an upright position; the kidney would then have to sink. For such kink to occur when the aberrant vessel runs in front of the ureter, the kidney would have to occupy the same position with regard to its long axis, the difference being that the upper pole would point toward the anterior abdominal wall and the lower pole

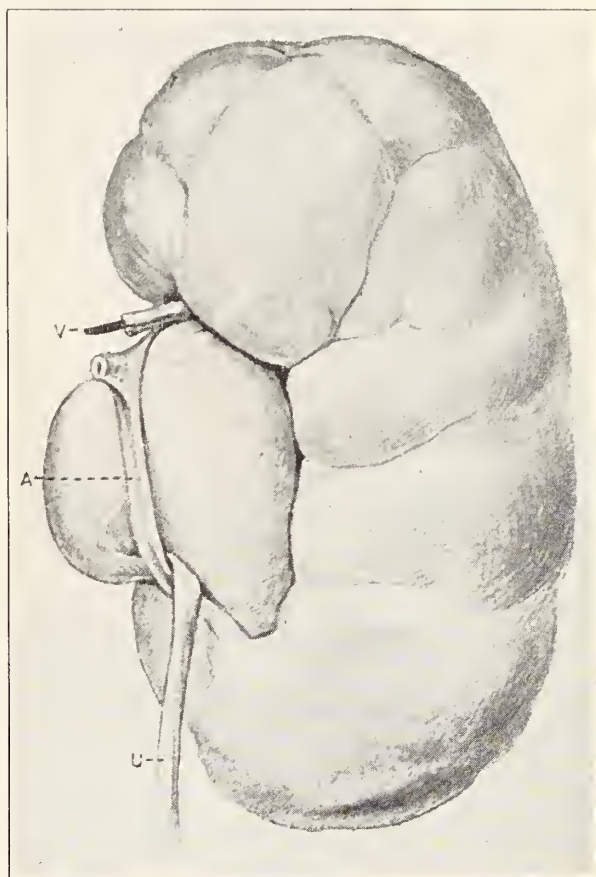


Fig. 4.

to the posterior wall. Such position could probably not be maintained by the kidney in the face of intra-abdominal pressure and the shape of the human body. The author has reproduced the kinking over an aberrant vessel by passing a silk ligature around the ureter, drawing the ureter forward to the anterior abdominal wall, and tying this ligature around the rib in the anterior axillary line, intraperitoneally, in the dog; and has failed completely to produce hydronephrosis as demonstrated in the following illustration (Fig. 3) which shows the kidney so treated, together with its fellow, six weeks afterwards. The cause and result seem to be con-

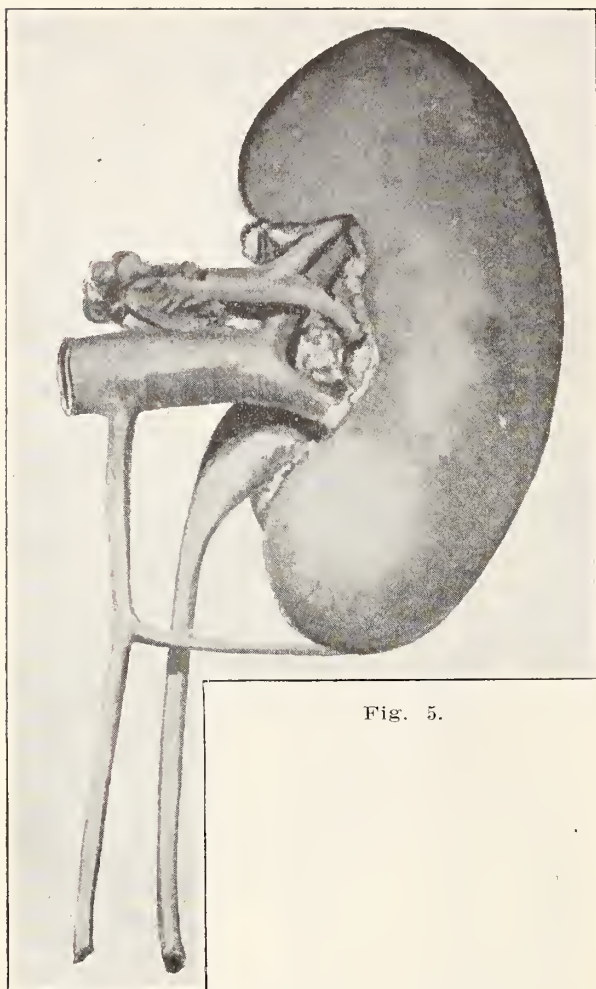


Fig. 5.

fused in this aberrant vessel idea as follows: if a normal branch of the renal artery run forward to the lower portion of the pelvis, on its anterior surface, which is the case fully 50 per cent of the time, while two other branches run to the upper portion of the pelvis, one anterior and one posterior; if, then, the anterior wall of the pelvis give way from dilatation, it would pouch itself over this inferior anterior branch, even dragging a portion of the ureter with it, and seemingly it would be such vessel which had caused constriction of the pelvis or the ureter, producing hydronephrosis at this point. In reality, as one may see, it would be the hydronephrosis which produced the bellying over the artery, making it seem as though this normal vessel were an aberrant one. (Fig. 4.)**

Fig. 5*** shows a truly aberrant vessel and it will be seen from this illustration that if the ureter dilated it could kink itself over this vessel, but on the contrary it would be impossible for such condition to occur with-

out preliminary dilatation of the pelvis and upper ureter. Aberrant renal vessel, therefore, never causes hydronephrosis or hydro-ureter.

Angulations, curves, or kinks are present in 33 1-3 per cent of all normal ureters. These normal kinks (Fig. 6) do not of themselves cause trouble as time illustrates, everything above them remaining normal. Experimentally it has been shown that suturing the walls of the ureter together to make a kink does not produce changes in the ureter or renal pelvis, and the essayist, as above stated, has been unable to produce changes by sewing the ureter to the anterior abdominal wall, with a silk ligature, in the dog, provided this ligature did not constrict the ureter. When a silk ligature was passed twice around the ureter, and the ureter sewed to the anterior abdominal wall with the same ligature, hydronephrosis ensued; on killing such animal, it was found that this ureter was tightly constricted, just as if a ligature had been tied around it. It is extremely common to find kinks of the ureter in connection with hydro-ureter (Fig.



Fig. 6. Marked kinks appearing with normal pelvises and ureters. There is a double pelvis on the left side with two ureters, both kinked.



Fig. 7. Kinks in abnormal ureter due to elongation of ureter. Note dilatation of ureter below as well as above kinks. Pelvis is well filled. Small stone in kidney outside of pelvis. Case of Nephro-pyelo-ureteritis.

7), but this is undoubtedly due to the elongation of the ureter which goes hand in hand with the dilatation. This is easily understood when we refer to the anatomic structure of the ureter as shown in the early part of this paper. It will be remembered that there are two longitudinal coats and one circular coat. If, therefore, these fibers be stretched, it will be seen that the ureter is lengthened by the stretching of the longitudinal fibers, as well as widened by the



Fig. 8. Tight stricture of ureter near bladder causing dilatation of ureter. Dilatation caused elongation. Elongation compelled kink. Pelvis not filled.

stretching of the circular fibers. If, therefore, the ureter be lengthened, but the distance between its exit at the kidney and its entrance at the bladder remain the same, the ureter must kink itself. And it usually does this at some one or two or three places between the bladder and the kidney, dilatation occurring above as well as below the kinks, thus showing that the dilatation is not due to the kink. (Fig. 8 of kinks due to dilation of ureter above tuberculous stricture).

Kinks, angulations and curves occur normally; abnormally as result of ureteral dilatation; but they never cause such dilatation. This kink idea started by Dietl, in 1864 or thereabouts, as an explanation for his "kidney crisis", has been carried through from that time to the present by various authors, and has gradually been discarded, even the very term "kink" being no longer used. We describe these ureters, whether there be one or many "kinks", sharp or obtuse ones, curves or what not, as "tortuous ureters".

No satisfactory specimens and proofs have ever been exhibited of "traumatic hydronephrosis" except where injury to the ureter has been demonstrable, such injury causing closure of the ureter. It is evident that such closure of the ureter would be responsible for the hydronephrosis. My experience has been that where hydronephrosis has been existent for a long while, due to other causes, the patient's attention has been called to his condition by a traumatism which has caused a hemorrhage from such hydronephrotic kidney. In these cases, as a rule, hydronephrosis or hydro-ureter can be demonstrated immediately after the receipt of the injury, a condition which would have taken more time for its development than the time elapsing since the injury.

High insertion of the ureter, and valve at the uretero-pelvic junction, were formerly believed to be the cause of hydronephrosis; it is now evident that the high insertion of the ureter is due to a dilation of one wall of the pelvis which results in the pelvis bulging below the insertion of the ureter. Such bulging and stretching stretches this lower wall of the ureter until the pressure within the pelvis makes this elongated lower wall act as a valve.

To return, now that the ancient theories have been disposed of, to our causes, (1), (2) and (3). If all the conceivable conditions or disease coming under these heads be taken into consideration, the pathogenesis of dilatation of the ureter and kidney pelvis will be made clear.

Under heading (1) must be included: (a) all inflammations of the kidney pelvis or ureter, which by extending to the musculature, causing a round celled infiltration, and

eventually replacing musculature by fibrous tissue, would interrupt a rhythmic contraction; in other words, pyelitis or ureteritis or both. (b) Damage to the innervation, or interruption of this nerve impulse, so that the musculature cannot receive its proper message to contract, when such contraction is necessary. (c) A loss of tone of the muscle as a result of cutting off its trophic supply; and these latter two causes might be brought about by a spinal cord lesion high enough to interfere with the above mentioned sympathetic nervous system.

Under heading (2) would come strictures of the ureter, such as congenital strictures. All other strictures, as for instance, those caused by trauma of a stone passing, tuberculosis and all other inflammations of the ureter would come under heading (1) as well as heading (2), as it is not conceivable that sufficient injury can be done to mucous membrane to cause scar tissue sufficient to prevent the musculature from pushing the urine past such spot, unless such musculature were damaged also; and it is not conceivable that an infection can involve the mucous and submucous coat without sooner or later involving the muscular coat. Accidental ligation of the ureter occurring during surgical procedures would also come under heading (2).

Under heading (3), which is self-explanatory, come all obstructions from meatus urinarius externus, to and including the neck of the bladder (whether such obstruction be an intrinsic part of the lower urinary tract, or caused by something outside this tract) which would cause dilatation of the bladder sufficient to render impotent the so-called uretero-vesical valves, thus causing dilatation of the ureter sufficient to overpower the ureteral musculature. A detailed study of these conditions would take us too far afield. Suffice it to say, that these cases are known to all of us, being exemplified by enlargement of the prostate with large long-standing residual.

It is apparent that there remains to be explained a large group of cases of hydronephrosis and hydro-ureter, and these can be grouped into two classes as follows: Class 1—All cases due to injury of the sympathetic

nervous system intrinsic to the pelvis and ureter, and these cases are either (a) congenital (Fig. 9) or (b) the result of spinal cord injury or disease. In all of these cases both kidney pelves, both ureters, and the bladder are involved and they are best described as "cord bladder", "cord ureter", and "cord pelvis". Both (a) and (b) together comprise a very small percentage of the hydronephroses, and are to be suspected whenever this disease is bilateral and whenever a residual is to be found in the urinary bladder. Class 11—All other cases coming under headings (1) and (2), and under this subdivision come the large majority of hydronephroses and cases of dilated ureters (their number far exceeding the number produced by all other causes combined) and they may best be discussed under the title, Nephro-Pyelo-Ureteritis.

Under this title come all the diseases caused by blood-borne infections and by ascending infections, whether these ascending infections be via the ureter, or through the lymphatic system. Even multiple abscesses of the kidney, or multiple subcapsular abscess will eventually produce the pathologic lesions which will come under the heading above, if the patient live sufficiently long.

Two years ago the author wrote an article entitled "Pyelitis?" for the two-fold purpose of impressing on the medical profession, that which many of them already knew, namely, (1) that pyelitis, per se, did not exist; that in all cases of pyelitis, the kidney itself and the ureter were involved, of course in varying degrees, but nevertheless involved; and (2) for the purpose of impressing on the readers the fact that pyelitis meant an inflammatory process which not only involved the mucous membrane and the submucous connective tissue, but the muscular coat as well, of course in varying degree, but nevertheless involving all these coats, and involving, as above stated, the kidney, kidney pelvis and ureter.

Such inflammation is caused, of course, just as inflammations anywhere else, by an infection, and this infection is carried to the kidney in the majority of cases through the blood stream. It resides in the kidney for a



Fig. 9. Enormous dilatation of both ureters and both pelves. Bladder held nineteen ounces of residual urine after patient had urinated. This picture was made by filling the bladder and putting the patient in the Trendelenburg position, the medium flowing up ureters into pelves.

varying length of time, and then the pelvis or ureter or both become involved. Or, such infection travels up the ureter from the bladder, involving first the ureter, then the kidney pelvis, and finally the kidney itself. Or it is carried to the kidney by way of the lymphatics, as, for example, from the testicle; in such case, this infection involves the kidney pelvis first, spreading to the ureter or the kidney, or both, later.

With the subsidence of an acute attack of nephro-pyelo-ureteritis, the generalized inflammation disappears, leaving small areas still involved, the micro-organisms causing the trouble being rather deeply buried in the mucous membrane of these areas. These micro-organisms, at these spots, are not only deeply buried in the mucous membrane, but find their way to and into the submucous connective tissue in certain portions of this tract, and later into the muscular coat.

With each succeeding attack new areas are involved, and while the micro-organisms do not always find their way into the muscular coat, this occurs just so often, that sooner or later there are numerous areas where this coat is deeply involved, both in the kidney pelvis and in the ureter.

The result of this process is just what, needless to state, occurs in any other tissue of this stripe, when such repeated infections occur. There is only this to state, that the uropoietic system is more liable to this process than other systems, because when there is an intertubular infection in the kidney, and this infection frees itself from the fibrous tissue which tends to surround it as a process of cure, the chances of infection of the mucous membrane of the kidney pelvis and ureter are great, because of the traumatism to which this latter tissue is subject, plus the presence of pathogenic micro-organisms.

It is not always that the mucous membrane and submucous connective tissue, on the one hand, and the muscular coat, on the other, are equally involved; and it will frequently be found that the musculature is much more severely damaged than the mucous and submucous coats. Again the mucous and submucous coats may show the greater amount of damage.

If this latter, namely, damage to the mucous and submucous coats, is greater, pyelitis and ureteritis with closure of these cavities results; thus, stricture of the ureter **may** occur; but attention is called, here and now, to the fact that nephro-pyelo-ureteritis existed first before the stricture; and to the further fact that even if the stricture could be completely cured, the process would go on just the same, resulting in ultimate destruction of this side of the uropoietic system, provided the patient lived long enough.

When this involvement of the mucous membrane and submucous connective tissue occurs in the kidney pelvis, together with the usual deposit of fibrous tissue in the kidney substance, the result is usually what is known in pyelography as "atrophic pyelonephritis," and is shown in the pyelogram as a closure or contracture of the kidney pelvis.

It is not only possible, but highly probable, that time and numerous pyelo-ureterograms will demonstrate this process of nephro-pyelo-ureteritis going on for considerable time before the formation of actual strictures, in all cases of stricture formation in the ureter, except where such strictures be congenital.

When the infection affects the muscular coat more than the mucous coat, in a given pelvis and ureter, and the formation of fibrous tissue results in, (1) the separation of the muscle fibers, one from the other, and (2) the death of such fibers, and their replacement by fibrous tissue, relaxation of the kidney pelvis or ureter occurs, followed by dilatation. This is a progressive process, and these are the cases in which the immense hydronephroses and hydro-ureters are found, **without obstruction**.

Why is it that in one case the dilatation occurs in the ureter, or even a part of the ureter, and in the kidney pelvis, or even a part of the kidney pelvis, in another; and in the calices, or even in some of the calices in still another? It is because the damage predominates in, or is confined to the muscular coat of any one or numerous ones of these locations.

What has been written here is a cursory

over-glance of this enormous subject, and only if these various parts of this immense subject are taken up, slowly and carefully, one by one, will the pathogenesis of hydronephrosis and hydro-ureter be still further elaborated.

*Statistics taken from Geraghty and Frontz: The author has borrowed everywhere and given credit nowhere, no attempt being made to furnish bibliography, references being mentioned only because they are interesting.

**H. P. Winsbury White, *British Journal of Surgery*, Vol. 13, pp. 247.

***Taken from White's article above mentioned.

****Childs & Spitzer, *Roentgenographic Study of the Normal Kidney Pelvis and Ureter—A.M.A. Journal*. Sept. 20, 1913, Vol. LXI, pp. 925-931.

DISCUSSION

G. N. Myers, Pueblo: I think Dr. Spitzer is to be congratulated on attacking this well-discussed subject in a little different manner, and I sincerely hope that he will continue his investigations and be able to report to the Society several years from now his conclusions at that time. In speaking of infection in tuberculosis of the kidney, it certainly bears him out. We see numerous strictures formed by the infection resulting in pelvic dilatation afterwards. Also, in some cases where stricture has not been produced we see destruction or change of the wall of the ureter, losing its elasticity, and probably effecting the nerve elements there, which results in the same thing. In tuberculosis it is proven almost conclusively.

T. D. Cunningham, Denver: Dr. Spitzer asked me if I would not say a few words. I think it is a rather interesting subject, and his theory on the formation of these things is interesting also. I will pursue it a little further, perhaps, and suggest that if you have an infection, and a weakening of the walls of your ureter, you have a similar process to that which goes on in arteriosclerosis, or for example, you might take the large bowel and say that diverticulitis was caused by similar infection. If you have an infection in the wall of a ureter it would seem to me that the infection would be followed either by vicious, or scar tissue or both, and it would probably explain the formation of a stricture of the ureter better than anything else.

T. E. Carmody, Denver: I am not going to discuss treatment, but, as to the point brought up by Dr. Cunningham, of the diverticuli, many of those in the esophagus are due to congenital weakness and not necessarily due to obstruction. The thing I wish to discuss mainly, however, is the prevention of this condition, if it is due to infection, and I think it is. The recurrent cold, which we have, is very frequently followed by a pyelitis, and we have to, of course, clear up the infection in the respiratory tract before the pyelitis clears.

Another matter covered by Dr. Roberts this morning,—the infection in different portions of the respiratory tract,—he spoke about the teeth and tonsils, but the focal infection of the sinuses is present in many cases and may take place as early as two weeks. Infection of the maxillary sinuses and ethmoids is frequently the cause of recurrent colds. Watson Williams has reported a number of cases of acute mania associated with sinus infection, and we have also seen sev-

eral, one being in a physician and one in a nurse.

The prophylaxis of pyelitis depends entirely, I think, on the prophylaxis of the upper respiratory infection, and I think we will have the prevention of a great deal of this cause, as well as the prevention of general disease, when we quarantine colds. Nurses and doctors, with colds, visiting patients with lowered vitalities, and not wearing masks, is the source of many colds.

Dr. Spitzer (closing): I thank Dr. Carmody for taking up the matter of focal infection, which as I attempted to infer, is responsible for hydronephrosis and hydro-ureter in the immense majority of cases. I am sorry Dr. Cunningham did not take the subject up from the same viewpoint, as I would have liked to hear from him on focal infection; he discussed it from the mechanical viewpoint alone, endeavoring to show that if only one portion of the pelvis or one portion of the ureter were affected, diverticulation would always ensue. In the first place, diverticulation to a moderate degree is not uncommon as I have shown in some of my illustrations; in the second place, as I have said, no single portion is affected alone, the entire tract being infected and affected, some portions yielding more to the pressure of the disease than others; and, lastly, when this paper appears in print I believe this will be made clear to the Doctor.

One gentleman says that nobody ever claimed that loose kidney caused hydronephrosis. Careful perusal of this article will show that an immense school claimed this. Another gentleman insists that loose kidney is the direct cause of hydronephrosis and suturing of such kidneys into certain given positions cures hydronephrosis. I will have to be content in letting the statements of these two gentlemen offset each other, and permit the hearer or reader to judge for himself upon hearing or reading the article.

Dr. Davis states that he cannot understand the infection in the kidney or ureter occurring except there be some obstruction below such infection to cause it, and draws the analogy of the stricture in the urethra and the infection and dilation occurring behind it.

He would infer, I presume, that the stricture of the urethra occurs first, and is the cause of the gonorrhea? That is exactly what I am trying to prove, namely, that the infection occurs first, and eventually causes many changes, among which changes, stricture is to be found.

In a large number of autopsies conducted at various clinics in which hydronephrosis or hydro-ureter or both were found, obstruction to the flow of urine was found in only a limited number, and the rest were called "idiopathic" hydronephrosis. Furthermore, the illustrations I have just showed you conclusively demonstrate that hydronephrosis and hydro-ureter occur without obstruction.

Scarlet Fever Control

In a recent symposium on the control of scarlet fever, it was brought out that while the incidence of the disease had not been materially lessened during the last forty years, its severity had markedly decreased so that scarlet fever now causes fewer deaths than either measles or whooping cough.—Children's Bureau.

About five miles is covered by the average golfer playing eighteen holes of golf.

SPINAL FRACTURES

AN ANALYSIS OF END-RESULTS IN 100 CASES* - **

ATHA THOMAS, M.D.
PUEBLO

Impartial and careful studies of end-results in any large series of surgical cases are always interesting and of considerable value in checking up accepted methods of treatment. There have been many such studies made of spinal fractures, but the results have always been enlightening and of some aid in the efforts being made to solve this baffling surgical problem.

The traumatic cases admitted to the Minnequa Hospital are for the most part industrial casualties, and the surgical staff, therefore, has an unusual opportunity to study the end-results in these cases. This is true not only because of the large number of cases treated, but also because of the excellent facilities for the follow-up of such cases. Not only does the Colorado Fuel and Iron Company keep an accurate record of all injuries and their resulting disability, but nearly all of these cases come under the jurisdiction of the State Industrial Commission and the amount of disability carefully determined by them. It has been possible, therefore, to check the end-results in nearly all of the last one hundred cases of spinal fractures admitted to the Minnequa Hospital over a period of between eleven and twelve years. No case still under treatment has been included in the study.

A portion of this paper is in the nature of a preliminary report to serve as a basis of comparison for a future study. It is that portion devoted to the group of compression fractures of the vertebral bodies uncomplicated by cord lesion. The majority of the cases fall in this group and it is this type of case that so often goes undiagnosed and is so poorly treated. For reasons which will be discussed more fully later, the treatment of these cases at this hospital has recently changed and it is now the policy to do fusion operations on all such cases. When sufficient time has elapsed and the service is

large enough, it is planned to make a further study, comparing the results obtained by operative treatment with those obtained by simple immobilization and recumbency, which has been the treatment heretofore.

A similar study was made by Brackett and his associates in 1918 on a small series of cases and it is hoped that the encouraging results obtained by them may be repeated.

ANALYSIS OF CASES

Etiology and Diagnosis

Of the one hundred cases studied, 90 per cent resulted from mine accidents, usually rock falls. Those with fractures of the compression type usually gave a definite history of forcible flexion of the spine.

The diagnosis was made without difficulty as a rule, as all back injuries admitted to the hospital are x-rayed routinely, both anterior-posterior and lateral views being taken. In this way vertebral fractures that might otherwise go undetected were usually found. The lateral view of the spine is especially important as it is the only way by which can be shown the typical wedging of the vertebral body with a compression fracture.

Location and Type of Lesion

In 4 cases out of the hundred, the cervical region was involved; the dorsal region alone, in 3; the lumbo-dorsal, in 16; and the lumbar region alone, in 60. The vertebrae most frequently involved were the third and fourth lumbar, each being fractured twenty times in the series.

In 17 cases the fracture was limited to the transverse processes. Two of these had only a single process involved, the second lumbar in one and third lumbar in the other. All the others were multiple and usually limited to one side.

There was a total of 46 cases with fractures of the vertebral bodies without cord lesion. Nearly all of these were of the compression type, with or without involvement of the laminae, and most frequently involved the last dorsal and first three lumbar vertebrae.

*From the Orthopedic and Fracture Service of the Minnequa Hospital.

**Read at the fifty-seventh annual meeting of the Colorado State Medical Society, Glenwood Springs, Colorado, Sept. 6, 7, 8, 1927.

DESCRIPTION	TOTAL NUMBER	RESULTS							No DISABILITY	Not ACCOUNTED FOR
		DEATHS	TOTAL PERMANENT DISABILITY	PERMANENT PARTIAL DISABILITY						
				75-50%	50-25%	25-5%	TOTAL			
BODY FRACTURE WITHOUT CORD LESION	46	0	6 (17%)	3 (9%)	7 (20%)	3 (9%)	13 (38%)	15 (45%)	12	
BODY FRACTURE WITH CORD LESION	37	18 (48%)	8 (22%)	3 (8%)	4 (11%)	0	7 (19%)	4 (11%)	0	
FRACTURES INVOLVING THE TRANSVERSE PROCESSES	17	0	0	3	2	5	10 (59%)	7 (41%)	0	
TOTAL	100	18	14	9	13	8	30	26	12	

TABLE No. 1.- SUMMARY OF END-RESULTS OF 100 CASES OF SPINAL FRACTURE

Nerve Involvement

There was nerve involvement in 37 of the cases. This varied in degree from a temporary muscle weakness to a permanent and complete paralysis below the site of lesion. The most common manifestations of nerve involvement were bladder paralysis and a paralysis of the peroneal nerve, resulting in a permanent foot-drop.

Complications

In 24 cases there were complications other than cord involvement. Pelvic fracture, ruptured urethra, fractures of the long bones, ruptured abdominal viscera, and dislocations of various joints were some of the more common complications. Pelvic fracture occurred most frequently.

Treatment

Treatment in nearly all cases was essentially conservative, consisting of immobilization of the spine in a plaster jacket and recumbency for a period of eight to twelve weeks. This was often followed by a belt or a brace. Laminectomy was done in only three cases. No operation has been done within the past eight years as there has been no case in which it was felt that the results obtained would justify such a procedure.

Results

Out of the total of 100 cases, 18 died as a result of the injury. All 18 had nerve involvement of more or less severity. Seven cases died outright from shock while the

remainder lived for weeks and even months and finally died from such complications as cystitis, pyelonephritis, and pneumonia. Of the 3 cases in which laminectomy was done, 2 died following the operation and 1 resulted in a 50 per cent permanent disability.

In the total series there were 18 cases that were totally and permanently disabled as determined by the State Industrial Commission. There were 30 cases that resulted in a permanent partial disability varying from 5 to 75 per cent as follows: 5 to 25 per cent, 6 cases; 25 to 50 per cent, 13 cases; and 50 to 75 per cent, 9 cases. These figures were not only determined by the findings of the Industrial Commission but also by the wage earning ability of the individual after his return to work, as compared with that prior to the injury.

There were 12 cases that were not compensation cases and did not return to the employ of the company, so the disability could not be determined.

Twenty-six cases had apparently no permanent disability and were able to return to work, earning the same wages as before the injury. Of these 26, 7 were of the transverse processes alone.

Of the cases that had cord lesions, 37 in all, 18 (48 per cent) died; 8 (22 per cent) were permanently and totally disabled; 7 (19 per cent) were partially disabled; and 4 (11 per cent) had no disability.

There were 46 cases of body fractures of the compression type without cord lesions. Of this number, 12 were unaccounted for. Of the remaining 34, there were no deaths; 6 (17 per cent) were totally and permanently disabled; 13 (38 per cent) had a permanent partial disability; and 15 (45 per cent) had no disability. In other words, of the uncomplicated crush fractures of the vertebral bodies there were 55 per cent that were permanently disabled to some degree, the average disability being around 50 per cent.

There were 17 cases in which the transverse processes alone were involved. Seven of these had no disability and the remaining 10 were partially disabled as follows: 5 had a disability ranging between 5 per cent and 25 per cent; 2 between 25 and 50 per cent; and 3 between 50 and 75 per cent. These results in the transverse process fractures are rather surprising as most authorities report uniformly good results in such cases.

REVIEW OF LITERATURE

How do the results obtained in this study compare with those of other reported series? Probably the most recent study is by Haumann, reporting a series of 204 cases admitted over a period of five years to a mining hospital in Prussia. Over 50 per cent died soon after injury, this being a much higher mortality rate than in any series published in this country. The mortality rate in our series was 18 per cent. Spinal cord injury occurred in 62 per cent of the cases. It was only 37 per cent in our study. He reports very excellent results in the uncomplicated cases. Permanent compensation was allowed in only 5 per cent of the cases and a settlement was made in 10 per cent. He further states that 61 per cent were able to return to work after five years and 80 per cent after nine years. He does not state, however, how much they were able to do and how their earning capacity compared with that previous to injury. His treatment was purely conservative and the period of recumbency was remarkably short, no longer than six weeks in uncomplicated cases.

Geist in 1925 reported a series of 74 cases, of which 33 per cent were complicated by

cord injury. The average disability in old, untreated cases was 50 to 75 per cent.

Cleary in 1924 reported 52 cases of compression fracture of the vertebra. The average disability of the unoperated cases, as estimated by the standards of the California Industrial Commission, was 40 to 50 per cent and higher. He goes so far as to say that is doubtful if, under any circumstances of apparent return to normal, it can be said that no potential permanent disability exists.

Brackett, Mixter and Wilson in their study in 1918 reported 27 cases of uncomplicated spinal fractures, 22 having been treated conservatively by recumbency and support. Of this number 4 fully recovered and 18, or 82 per cent, showed a persistent partial disability.

Sever in 1917 reported 27 cases of compression fracture of the vertebra. All of the cases were totally disabled from further heavy labor.

COMMENTS

There are two or three factors that should be taken into consideration in interpreting the results of this study. In the first place, mining involves very arduous labor, in a stooped and cramped position, and with the back bearing the brunt of the strain. Individuals who could do less laborious tasks without difficulty find themselves unable to go back to the mines and earn the same wages as before. And it is, of course, on this basis that the disability is determined.

Another factor is a mental one, involving the patient's attitude and it may be manifested in two ways. The compensation insurance is not an unmixed blessing and often an individual, naturally lazy, finds it much easier following an injury to draw his insurance than it is to dig coal to the same extent as before. The other manifestation is revealed in the depressing influence that is so often produced by the knowledge of a "broken back". We make it a rule never to tell these individuals that they have a fractured spine, especially in the cases with only a transverse or spinous process involvement. They frequently find it out, however, and unless they have sufficient intelligence

and ambition to overcome the depression, the reaction usually results badly.

In spite of the above considerations, such results as are revealed by this study and those of others are certainly most discouraging, and it is quite apparent that spinal fractures are as yet an unsolved problem in surgery. It is a serious problem and a three-fold one, faced not only by the surgeon, well aware of the difficulties of treatment and the discouraging results obtained; but also by the insurance carriers, who pay out large sums of money in compensation awards for permanent disability; and, most important of all, by the individual himself, and his family, who are faced with the reduction of their income.

With these poor results staring us in the face it seems that we are justified in advocating more radical operative procedures in the treatment of these cases. In making such a statement, I am not referring to laminectomy. Concerning cases with cord lesion and the indications for operative interference, the evidence is so conflicting and my own experience so meager that I do not feel qualified to make any definite recommendations. I am very much inclined, however, to accept the view advanced by Hartwell, which he expresses as follows: "Laminectomy cannot be considered other than a major operation which carries a definite mortal risk with it, and the desperate condition of a patient does not warrant the surgeon in adding the risk of operation unless there is more than a visionary chance of bettering a hopeless condition. A major operation is not justified on the basis that it will do no harm, and can conceivably, though improbably, do good."

In making a plea for more radical treatment, I am referring to that group of body fractures **without** cord lesions. It is that type that makes up the majority of cases and seems to offer the greatest hope of eventual recovery.

In reviewing the literature it is found that more and more surgeons are recommending operative fixation of the fractured vertebra by means of an Albee bone graft, or a fusion operation of the Hibbs type, or a combina-

tion of the two as described by Cleary. Brackett and his associates in a study previously referred to, made a comparison of results obtained by operative fixation with those obtained by immobilization and recumbency, reporting as follows: 9 uncomplicated cases were operated upon with a complete recovery in every case, the time varying from three to six months. Of the 22 cases treated conservatively, 82 per cent showed a persistent partial disability.

Cleary in a study of 52 cases, also previously referred to, makes the following statement concerning operative fixation; "After thorough fusion by early operation, industrial patients return to employment in eight months to one year, with an average permanent disability rating of 30 to 40 per cent or less. Similar patients, treated conservatively, take approximately twice as long to get back to work and show an average permanent disability rating of 40 to 50 per cent or more."

Fosdick Jones, Geist, Sever, and others, in writing on the treatment of compression fractures all recommend operative fixation of some form.

Wallace of Pittsburg is opposed to fusion operations for reasons which he states as follows: (1) Bony fixation does not necessarily give relief from symptoms. (2) Bony fixation prevents motion beyond that necessary for healing and to an extent amounting to more or less disability afterwards. (3) Bone grafting is not time saving, as the cases have to be immobilized as long as those not grafted. Wallace's statements notwithstanding, the consensus of opinion seems to be in favor of operative treatment.

As stated, we have recently adopted the policy of recommending early operation in all of those cases of crush fractures, **uncomplicated** by cord injury. The operation of our choice is that one described by Hibbs. It is more severe and more difficult than the Albee graft but seems to insure a more thorough fixation.

As was stated at the beginning of this paper, it is hoped that at a later date, a detailed study, similar to this one, can be made of the results obtained by the operative

	HAUMANN	GEIST	CLEARY	WALLACE	BRACKETT(ETAL)	HARTWELL	AUTHOR'S SERIES
TOTAL NUMBER OF CASES	204	74	52	82	27 (UNCOMPLICATED)	133 (INCLUDING TRANSVERSE PROCESSES)	100 (INCLUDING TRANSVERSE PROCESSES)
DEATHS	130	---	1	---	---	31	18
CORD INJURY	126 (62%)	25 (32%)	15 (29%)	23 (30%)	---	67 (50%)	37 (37%)
LAMINECTOMY WITH RESULTS	---	12 4-IMPROVED 8-UNIMPROVED	2 1-DIED 1-TOTAL PERMANENT DISABILITY	---	---	35 4-DIED 6-IMPROVED 25-UNIMPROVED	3 2-DIED 1-WITH 50% PERM DISABILITY
END RESULTS	61% RETURNED TO WORK IN 5 YEARS 80% IN 9 YEARS	50-75% DISABILITY IN OLD CASES	40-50% PERMANENT DISABILITY	---	18-WITH PERMANENT DISABILITY OUT OF 22 UNOPERATED CASES	---	14-WITH TOTAL DISABILITY 30-WITH 50% DISABILITY 26-WITH NO DISABILITY

TABLE No. 2 - COMPARISON OF RESULTS OF AUTHOR'S SERIES WITH THOSE OF OTHER REPORTED SERIES

treatment of these cases, and a comparison made with the results of this present study. It is only by such studies that the enthusiastic claims for operative procedures can be substantiated.

CONCLUSIONS

1. In a study of 100 cases of spinal fractures there were 18 deaths; 14 cases with permanent and total disability; 30 cases with a permanent partial disability averaging 50 per cent; 26 cases with no disability; and twelve unaccounted for.

2. Of 34 cases of crush fracture without cord lesion, 19 (55 per cent) had a permanent disability averaging over 50 per cent, as determined by the State Industrial Commission and by the individual's wage earning capacity following injury.

3. Of 17 cases in which the fracture was limited to the transverse processes, 10 (59 per cent) had a permanent disability averaging 30 to 40 per cent.

4. In the face of such results as are obtained by conservative methods of treatment, operative fixation of the fractured vertebrae seems justified in the cases of body fractures uncomplicated by cord injury.

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DISCUSSION

G. H. Curfman, Salida: Dr. Thomas is to be congratulated on the extensive study he has made in collating one hundred cases of spinal fracture treated in one institution under expectant treatment. This series should furnish ample material for contrasting the results of non-operative with operative treatment.

It is gratifying to know that laminectomy is not advised. In nearly every spinal injury, with cord lesion, the question of operation is brought up either by relatives or by the referring physician. Ofttimes it is necessary to consult a neurologist to satisfy all parties concerned.

The fixation method apparently has much merit, otherwise such orthopedic surgeons as Geist and Jones would not advocate it. It would seem, however, that the internal splinting is not indicated in fractures of the cervical spine. Here we wish to obtain as much mobility as possible after the healing process has occurred. In such cases under our observation the results of expectant treatment have been good. In fractures of the dorsal spine we have the splinting effect of the thorax with less pronounced displacement than in the lumbar region. The fusion operation should be best adapted to fractures of the lumbar spine in which there is considerable displacement or crushing of the body of the vertebra.

Robert Packard, Denver: Continued pain and disability, with weakness of the back, are the outstanding features of unrecognized or untreated fractures of the spine. The primary treatment of fractures of the spine is support. The more secure a support, the more quickly and readily we have a healing of the fracture. The most certain and most logical support in my mind in

compression fractures is operation of spinal fusion, because, in the first place, the spine is more directly supported and the fusion takes hold of the bones themselves; and, secondly, it is a support that cannot be tampered with, and is therefore more secure, because otherwise the brace or cast has to be constantly watched and adjusted. We operated one case, a man who had a fracture of the second lumbar vertebra. His case was unrecognized for a long time, and later on treated, and for seventeen months he went along with pain, which is the big symptom of fracture. We saw him at the end of seventeen months, and after some advice he was operated upon, so that in nine months he was ready to return to work. I feel that in all cases of compression fracture, especially in working men, that fusion is the logical treatment, because it decreases the amount of disability, though it is true some cases of compression fractures will do just as well without operation.

L. H. McKinnie, Colorado Springs: I have enjoyed the paper and have enjoyed the discussion, but that is entirely from the surgeons' standpoint. Now, I would like to talk from the patient's standpoint. I cannot say that I have had experience in the fusion type of treatment, but with rest in bed, recumbency, cast and brace. Dr. Thomas did not go into any of the symptoms, but I can give you some of them. The pain is atrocious, and one thing that I think is not commonly or frequently recognized or emphasized is the girdle pain that goes with these fractures. There was terrific pain in my back, but I think the pain which was referred to the region of the gall bladder, and coming around both sides is more severe. For about eighteen to twenty-four hours I also suffered a great deal of intestinal distention, which was exceedingly disagreeable. I fortunately fell into the hands of a good orthopedist, Dr. Freiburg of Cincinnati, and for the first two weeks he was not able to put me in a cast, or do anything other than to put me in bed, which he did, with sand bags along by spine, which, however, support the spine, until I got rid of my distention, and then the cast was put on. Before the cast was put on, however, and for a short time afterwards, the spasmodic pains were the disagreeable feature. If any of you have ever had a body cast put on you know that it is an invention of the devil, so far as comfort goes. The mere touching of my bed, or moving of my body by the nurse, or any of the other attendants, was very apt to cause a spasm of the muscles down the back, throwing me into a mild opotholosis. They came on any time, five minutes to an hour apart at the beginning, and each one caused me to think it was the last one, because you think it is never going to relax again. Those are some of the joys which the patient has. You have trouble with your skin under the case, and you have trouble in position. Anyway, very few of us are accustomed to lying for weeks on our backs, and it does become very monotonous to be able to do nothing but look at the ceiling, and ceilings as a rule are not very agreeable scenery after a few hours. One advantage the cast has is that you can use it as a card table, and you can also use it as a dining table, because it is perfectly secure and perfectly hard, and there is no movement to that table except the movement you give it yourself. Fortunately, I got out of this without operation with apparently a perfect result. I was in a cast for three months, wearing a brace, and then following that one of my colleagues came to the house one Sunday

evening and very calmly announced that I had a big gall stone that they decided ought to be taken out. This added to the festivity of the occasion, so that at the time I resumed work approximately eight months had elapsed, but since which time I have had no symptoms in my back—but it requires about eight months.

O. S. Fowler, Denver: I should like to report a very unique case, that is, unique in its method of fracture: About sixteen years ago a very husky young man hopped up-out of bed quickly one morning and got what he commonly called a "crick in the neck." Just around the corner was a "Dr." called Napropath—I don't know what relation he was to a chiropractor, but they must be something similar, at least in their method of treatment. He explained to him that he had dislocated a vertebrae in his neck, so he laid him down on the table and got his knee on the side of his neck and gave his head a quick jerk, and the patient says "My God! I believe you have broken my neck," and the napropath said, "No, that is just the bone slipping back in place." The boy's pain increased, and I was called in to see him, and Dr. Stover took an x-ray and found both lateral processes were broken, as I recall, at about the fourth cervical vertebrae. I simply wanted to mention this case, as I thought you might be interested in it.

F. B. Stephenson, Denver: I would like to show two or three slides, demonstrating severe vertebral fractures in two cases, with unusual freedom from symptoms in one case not specially treated, and permanent relief of symptoms in the other case after correction of deformity. (Slides shown.)

W. W. Wasson, Denver: It strikes me that Dr. Thomas' paper is quite pertinent. It seems that the great thing (along fracture lines) bothering surgeons today is fractures of the spine. It also seems to me that the great outstanding thing in fractures of the spine is the number of fractures going about unrecognized, or slow of recognition. There are so many fractures of the anterior portion of the body of the spine, little chippings, small compression fractures, which are almost impossible for the surgeon to locate, and very difficult for the radiologist. After all, the surgeon does depend upon the radiologist for his final conclusion in diagnosis. These compression fractures of the anterior portion of the spine have recently become more numerous because the radiologist is now able to take a lateral picture of the spine and show them. In no other position can we show these fractures of the anterior portion of the body of the spine. There is one part of the spine, the seventh cervical, which is always quite difficult for the radiologist, to get a true lateral picture. This summer I had two cases come into the office with a little stiff neck, with fractures of the seventh cervical. I overlooked one of them, the first time it came into the office. We had difficulty in taking lateral pictures, and did not get it. Coming back a few months later, we went into it more carefully, and were able to show a compression fracture of the seventh cervical. I thank you.

Dr. Thomas (closing): I don't know that I have anything further to say, except that I want to thank the members for their generous discussion. Most of our cases were in the lumbodorsal region. This is an industrial and an economic problem, and if we can lessen the period of disability, it seems to me that we are justified in doing so.

DENSENSITIZATION TO TUBERCULO-PROTEIN*

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Tuberculosis is a unique disease in that the only way of acquiring immunity is by having active infection with the tubercle bacillus. Animals infected with tuberculosis are resistant to reinfection either from within or without. The disease spreads in the individual by continuity, by the lymphatics or by the blood stream. In an infected animal there is always an attempt on the part of nature to check this spread by a local congestion about the site of infection; this congestion is due to a sensitization of the tissues.

The tubercle bacillus produces so little toxin that it can be injected into uninfected animals without producing any symptoms of reaction, but animals infected with tubercle bacilli for two weeks or longer will react to the injection of tuberculin. The new born infant will not react to tuberculin, but if a child is infected at birth after from one to several months it will give a positive skin reaction; the tissues of both the animal and the child have become sensitized to tuberculin. Old chronic tuberculous patients are much more highly sensitized than are infants or young children.

Probably on account of its waxy covering the tubercle bacillus is able to resist digestion in the stomach and also destruction by the phagocytes. Tubercle bacilli are parasites, multiplying only in man and animals. The tubercle bacillus is not a severe irritant to the tissues and may lie dormant in human beings for long periods. The reaction of the tissues to primary infection is proliferative the same as reaction to any foreign body in the tissues.

Hypersensitiveness the Only Immune Reaction in Tuberculosis

The hypersensitive reaction which develops in animals infected with tubercle bacilli is the only real immune reaction seen in this disease. Friedberger attempted to associate all anaphylactic phenomena with

the precipitan reaction but this has not been proved. Römer tried to find immune antibodies in the serum of his animals which were known to possess a high degree of resistance to reinfection but found none to correspond regularly with their degree of immunity. Agglutinins are almost constantly present but may not exceed the amount found in normal animals. Immune animals may fail to show complement-absorbing antibodies, while the serum of others completely inhibits hemolysis. There is no antitoxin in the sense of a substance capable of neutralizing tuberculin. The serum from immune sheep has no influence upon tubercle bacilli allowed to remain in contact with it for a long period. It is not possible to passively transfer immunity through the serum from a tuberculous to a noninfected animal. Tubercle bacilli are not destroyed by their own secretions, neither do they appear to be injured by the toxic substances, but as these substances lower the resistance of the host the bacilli seem to find favorable conditions for their growth and spread.

Investigations with immune reactions demonstrate how tuberculosis differs from typhoid fever with its agglutinins, diphtheria with its antibodies, syphilis with its complement-fixation phenomenon, smallpox, scarlet fever, etc., with their acquired immunity. In tuberculosis the only marked immune reaction is that of a hypersensitiveness, and for this reason there is poor response to the healing process.

Hypersensitiveness Due to Tuberculo-Protein Excreted by the Tubercle Bacillus

The injection of tuberculin into a healthy animal will not cause a reaction, but when injected into an infected one it will give well known signs and symptoms. My theory is that the growth of tubercle bacilli in the tissues is followed by the production of tuberculo-protein in the focus of infection. This protein passes out from the tubercle into the body fluids and is carried to all of the fixed cells of the body which become sensitized. This is probably a defense or

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immunizing process due to the formation of a specific enzyme. When more of this protein is thrown into the circulation of a sensitized animal the protein is split or hydrolyzed by the enzyme into irritating substances, which cause exudates into the tissues, these exudates contain the toxic substances referred to and they cause the symptoms which are so familiar in tuberculosis. These are the inflammatory exudates of this disease.

This theory seems more rational than that the specific protein is split into toxic and nontoxic portions. The enzyme forms during the incubation period of any disease and it cannot act on the molecule directly but must have the aid of a receptor or intermediary. Enzymes are not harmful except in the presence of their specific proteins. Neither the protein nor the enzyme alone seems to be harmful, but when they combine they cause symptoms of disease. There may be some question as to whether the tuberculin reaction is a specific one, as tuberculous patients may react to injections of other proteins; but this can be due to group reactions. We know that the exudate about any congested point is not specific but similar from all causes of congestion. The protein of milk may so nearly resemble the proteins in an inflammatory exudate as to cause a reaction when injected into the subject.

Tuberculin may mean a broth in which the tubercle bacillus has been grown or it may mean an emulsion of the dead bodies of the bacillus, but the specific active principle in either one is probably tuberculo-protein. If this substance is eliminated from tuberculin there will be no specific reaction and no beneficial effect from the use of tuberculin as a therapeutic agent. There is not much dissemination of this protein from a focus in the tissues so long as the bacilli are surrounded by the cells of the tubercle. This mass of cells does not contain blood vessels, but the tubercle and surrounding tissues become sensitized by the tuberculo-protein and the same condition is gradually acquired by all the tissues of the body. Any form of tuberculin will cause some reaction in a sensitized animal. In character it is a

specific allergic reaction occurring in animals which are infected with living tubercle bacilli. To a less degree animals may be sensitized by inoculations with dead tubercle bacilli.

Tuberculin can be produced in a protein-free medium; its protein-like substance may be of the nature of a polypeptid, giving no biuret reaction, but being destroyed by pepsin and trypsin. Whether or not tuberculin is an endo-protein liberated upon the disintegration of the bacillus is unknown. It is probable that some of this substance is excreted into the culture medium and that the major portion is intimately related to the contents of the bacterial cells. Satisfactory antitoxins for endotoxins have not been produced and this is an important point in differentiating between a true toxin and an endotoxin of any particular microorganism. It has been impossible to separate diphtheria or tetanus toxins from protein, and it is also possible that the tubercle bacillus does not produce a toxin but only a nontoxic protein-like substance which sensitizes the tissues.

If the bacillus were free in the body fluids and giving off its protein all the time fever should be continuous and this may be so in severe and rapidly progressive cases. The condition which we see most commonly is the chronic pulmonary type of tuberculosis. These patients have sufficient resistance to combat the disease but not enough to overcome it. In this chronic condition most of the tubercle bacilli are inside the tubercle and isolated more or less from the body fluids by the giant cells, fibrous tissue or caseous matter.

Under favorable conditions the disease may undergo a healing process or remain at a standstill for a long period. If healing occurs it may be by cicatricial induration, or the process may terminate in firm caseation, fibro-caseation, or soft caseation with disintegration. We might use the expression *Balanced Resistance to Tuberculosis* for those cases which have tuberculous infection, but not tuberculous disease. My resistance is balanced to my infection; I react to tuberculin but have no symptoms of disease, therefore require no treatment. Acute clinical tuber-

culosis results only from lowered resistance and spread of the disease. If we can prevent this we shall keep the case in a state of balanced resistance to the disease. Re-infection can come from within or from without; super-infections in patients who are highly sensitized cause the disease to take on a chronic type.

The natural barrier to the spread of tuberculosis seems to be the growth of the tubercle, that is induration and fibrosis. If the growth of fixed tissue cells exceeds that of spread of infection the disease is held in check. A small amount of tuberculo-protein apparently causes sufficient reaction to stimulate tissue growth about the foci of infection. In the same way tuberculin given as a therapeutic measure in minute doses, at first just sufficient to cause stimulation about the foci, should theoretically promote healing.

Long experience with tuberculin, by workers in all parts of the world, has shown that in the majority of cases the quantity used may gradually be increased until large amounts can be given without producing a reaction; the patient acquires tuberculin tolerance. The explanation of this is probably that the patient is desensitized to tuberculo-protein by the repeated and gradually increased doses, the same as is done in other forms of allergy. Anti-anaphylaxis is probably the same as desensitization, and signifies that the enzyme or ferment has been neutralized by the free receptors in the serum.

The limitations of successful desensitization will depend on our ability to judge the amount of tuberculo-protein to be used. The object will be to use sufficient protein to stimulate the focus to the formation of fibrous tissue, but not to stimulate it to such an extent as to lower the local resistance or to cause symptoms of intoxication. We wish to increase the healing process at the focus of infection and at the same time to lessen the tendency to allergic reaction. To accomplish the former the dose of protein must be so small that it will not cause a severe reaction and to accomplish the latter the dose must be gradually increased

in order to desensitize to the protein. We cannot destroy the bacilli in the tissues. Possibly if we could do this the patient would have no protection against reinfection; so, what the writer attempts is to desensitize to a point where there are no focal or general reactions, that is to a state of balanced resistance.

By using tuberculin, intra-dermally, according to the method of Mantoux or Römer, we are able to see the effect of each dose and to judge accordingly the amount of reaction which we are getting. The local reaction in the skin is an indication of the tolerance of the patient. Starting with a small dose, say 1-1000 of a milligramme in 2 or 3 minims of water, injected into the layers of the skin, will seldom cause a general reaction, probably because the local reaction is very severe before the dose is sufficiently large to cause a focal reaction. I have seldom found it necessary to give a larger dose than one milligramme by this method. In any case where the dose was too bulky to use in the skin a part of it could be injected under the skin. The use of pure tuberculo-protein for the skin test will eliminate the possibility of a local reaction being due to allergy from some other protein substance such as those in the broth culture media.

I have tried this method of treatment in a limited number of chronic cases with very satisfactory results. When old, highly sensitized, pulmonary cases were losing ground it has given them prompt improvement. In children this method has not given such satisfactory results, probably because they are less highly sensitized, but its use should be continued especially in those children who are losing ground under other methods of treatment. The use of tuberculin by this method should also be tried in acute and active cases in both adults and children as it is the only specific method of treating these cases.

Tuberculin treatment when successful has probably been a desensitization to the specific protein and may also indicate a diminution of the specific enzyme. In progressive tuberculous disease the patient is exhausted by repeated reactions. In desensitization by this method of treatment we relieve the pa-

tient of the symptoms of intoxication and improve his local tuberculous condition and we have the advantage of being able to observe the effect of each dose until we return the patient to a balanced resistance to tuberculous infection.

DISCUSSION

O. M. Gilbert: I think this paper of Dr. Cattermole's touches upon perhaps the most fundamental principle in the control of tuberculosis. I like to compare in my mind the matter of sensitization, hyper-sensitiveness in tuberculosis, to that of the defensive Spartan soldiers, the greatest soldiers perhaps the world has ever known. They developed a state of resistance which rendered them nearly invulnerable. Many of our students of the tuberculosis problem agree that the problem will be solved, as Victor Vaughan puts it, by a universal "tuberculinization" without tuberculosis. Along with the work of Pasteur came the recognition of the fact that the only true immunization in such a disease as this, comes through infection. All artificial means of producing immunity except by that sensitization which the tissues acquire through infection have proved futile, so much so that the eyes of the tuberculosis world, so to speak, have for a generation now been directed in this way. Welch and Hemburger, a good many years ago called attention to this fact, but said that it was a two-edged sword, it cuts both ways. In other words, you are protected up to a certain point, but beyond this it becomes a menace.

In 1913 Clive Riviere went so far as to suggest feeding children milk with a limited number of tubercle bacilli. Now, perhaps has come the greatest stride in this direction in the work of Calmette. He is deliberately feeding children attenuated bacilli, the bacilli having been run through fourteen consecutive cultures on bile media so as to attenuate them beyond the disease producing point. His work so far has reduced the morbidity of this disease enormously in those so treated. Recent reviews point to the fact that that perhaps will be the greatest thing we have had in the direction of a solution of the problem. But in the meantime we must take advantage of artificial means of protection, and tuberculin judiciously given, to patients judiciously chosen for

it, does offer a decided aid, and I am convinced that the tuberculin treatment will gradually come back, and that it will be used a great deal more than it is now.

I. D. Bronfin, Denver: I have little to add to what Drs. Cattermole and Gilbert have said. Tuberculin as a therapeutic agent will probably find a more definite place in the treatment of tuberculosis, unless we have in the near future a more specific remedy. At the present time, however, workers all over the world concede that tuberculin, while an aid in selected cases, particularly those of the fibrotic type who already are pursuing a more or less favorable course, has still a very limited application.

Like any other therapeutic agent, it is difficult to evaluate the merits of tuberculin. The improvement often noted following the treatment may be or may not be due to tuberculin. The psychic factor must not be overlooked. Some patients swear by tuberculin. One of my patients, who had acquired tolerance for pure tuberculin, claimed to be able to tell whether the diluted or full-strength substance was given, by the effects the latter had upon him. He stated that without tuberculin he did not feel as "peppy" and was unable to pursue actively his occupation.

One thing is certain. Great caution must be exercised in the uses of this agent. Not unlike heliotherapy, it is a double-edged sword, which may become dangerous in the hands of the inexperienced and prove beneficial in the hands of those who have knowledge based upon extensive experience.

Dr. Cattermole (closing): I would not use tuberculin in all cases, but would try it in cases which are not getting along well, and especially in old, highly sensitized cases. You can judge very definitely as to what effect you are getting from tuberculin. It has been suggested that it is possibly the psychology of tuberculin treatment which helps. This is more likely when the intradermal method is used because they can see it themselves. If you give too much of a dose to highly sensitized patients, they become sick, and if you don't give them much, they want more. In children, it is of doubtful value. If they show repeated attacks of fever and cough, and enlarged bronchial glands, you can try it with safety and it probably will be of benefit. Tuberculin should be used to desensitize in cases that are active and that are not doing well. In those that are doing well, why use it?

SYMPTOMATOLOGY AND TREATMENT IN CHRONIC ULCERATIVE COLITIS*

A. J. CHISHOLM, M.D.
DENVER

Chronic ulcerative colitis may arise from a variety of causes. Among the direct etiologic factors thus far recognized are the following: First, the bacillary, such as dysentery bacillus, the tubercle bacillus, occasionally the spirocheta pallida; second, parasitic, as the entamoeba histolytica, entamoeba coli, the flagellata, the nematodes; third, the toxic from metallic substances,

such as mercury, arsenic; and finally, the fourth, or the so-called idiopathic group, which is the usual medical formula for disposing of unknown factors. It is the last group with which this paper is concerned, especially one type in particular that recent researches by Dr. Bargen of the Mayo Clinic has established on a specific basis.

Dr. Hillkowitz has just described to you the bacteriology of the diplococcus of Bargen which has been isolated from certain

*Read before the Denver County Medical Society, November 1, 1927.

types of ulcerative colitis and where there has been known direct casual relationship between the isolated organism and its habitat in the colon. Needless to say, Koch's law of specificity has been complied with, so that the specificity of the organism has now been firmly established.

In our group of eight cases reported below, the disease was found to occur in six instances in men and two in women, all of whom were in the fourth decade of life excepting one, who was 65 years of age. The others ranged from 29 to 38 years of age. This small group is entirely inadequate to justify any sweeping conclusions, but nevertheless the incidents are worth reporting. The disease as a rule is chronic in course, insidious in its onset and characterized by exacerbations and remissions. The initial and most characteristic symptoms is diarrhea, although at times this may alternate with constipation. The diarrhea does not materially differ from other forms of diarrhea. The stools are frequent, from ten to twenty a day. They are fluid in consistency, often containing blood, pus and mucous. Usually the patient complains of progressive loss of weight and appetite, abdominal cramps and a heavy and full feeling along the course of the sigmoid. In one instance, the patient lost twenty pounds of weight in nine months' time. Tenesmus and urgency usually accompany this disease. Very valuable in the recognition of this condition is the proctoscopic examination of the mucosa of the rectum and sigmoidal colon, which reveals in the early stages of the disease a congested, swollen and red appearance. Later miliary abscesses form, presenting a granular appearance and, should the disease progress, superficial necrosis takes place, leaving shallow ulcers which take on a variety of forms and in the advanced cases most of the mucosa is denuded. One of the characteristics of this disease is the site of the lesions which tend to localize in the rectum not far from the anal opening and apparently spreads upwards into the colon. The greatest number of lesions are usually found in the rectal pouch and sigmoid. This is in marked contradistinction to chronic tuberculous colitis in which the lesions ap-

pear most frequently in the cecum. The presence of multiple small miliary abscesses in the rectal pouch with few constitutional symptoms and a history of chronic diarrhea suggest the presence of this form of colitis and a diagnosis may readily be made by obtaining a culture from one of these small abscesses. The culture is usually obtained through the proctoscope, which gives the Bargaen diplococcus as the predominating organism by the methods described.

Due to the research of Bargaen, the treatment of this condition has been placed on a specific basis. With the etiology of this disease established as being caused by a diplococcus, a vaccine prepared from this organism is used in the treatment. An autogenous vaccine or vaccine-filtrate made from Bargaen's diplococcus is administered hypodermatically, in increasing doses—starting with 1/10 of one cc, given every third day, the dose being increased 1/10 of one cc at each injection up to 1 cc, according to the patient's reaction. All foci of infection demand attention. Complete eradication of the foci of infection must be accomplished, whether the foci be in the tonsils, teeth, gall bladder or any other organ. When the disease is active, the patient should be put to rest for a period of from one to two weeks.

In addition, the dietetic management is important. A bland diet with little residue is indicated during the active stage. Certain medication has been found useful, iodine 10 to 15 drops in a glass of water three times a day. The iodine in many cases has a marked effect, making the patient feel more comfortable.

Local treatments may be used with the aid of the proctoscope—such as mercurchrome, silver nitrate, argyrol and ichthyol. Irrigations with hot water, warm physiologic solutions of sodium chloride, acriflavin 1-4000, solutions of sodium bicarbonate, olive oil and witch hazel. The response of patients to this combined treatment has been most gratifying. In one instance, a patient who had had persistent bloody diarrhea, with loss of weight for six months, had a normal stool after a week of specific therapy following the removal of diseased teeth

from which a vaccine was prepared containing the Bargaen diplococcus.

All of the patients showed marked improvement under this therapy. Active treatment is usually continued for three months, although the majority of patients apparently manifest a clinical cure by the end of the second month.

Surgical interference has a very limited place in the management of this condition. It is only when the mucosa of the greater part of the colon has been largely destroyed and the musculature has been impoverished, that ileostomy may be considered, and then only in extreme cases.

Report of Cases

Case 1—G. V. N., male, age 30 years. Came to my office with a history of bloody diarrhea for five months. The patient had lost ten pounds in weight, complained of abdominal cramps, marked urgency and tenesmus with passage of stools. Proctoscopic examination revealed diffuse inflammation of the mucosa of the rectum and sigmoid with irregular ulcers, which bled freely. A diagnosis of chronic ulcerative colitis was made, a culture was obtained from the mucosa and reported by Dr. Hillkowitz to be the diplococcus of Bargaen. He had his diseased tonsils removed and cultured. The diplococcus of Bargaen was found. A vaccine was prepared and administered in conjunction with the routine therapy. One month after treatment the patient was having one stool a day and his general condition is much improved.

This patient was in my office a few days ago. I availed myself of the opportunity to make a proctoscopic examination, which revealed a mucosa which was glazed, pitted and scarred. He is now back to his normal weight and feeling perfectly well.

Case 2—W. S., male, age 36. Came to my office with a history of rectal bleeding for four years, which had become progressively worse during the past two months, so that he was having eight to twelve stools daily, with much pus, blood and mucous. He had lost ten pounds in weight the past two months and was complaining of abdominal cramps and discomfort in the rectum.

Proctoscopic examination revealed diffuse inflammation of the mucosa of the rectum and sigmoid, irregular ulcers, with membranous bases and bleeding freely. A diagnosis of chronic ulcerative colitis was made. A culture was obtained and reported to be the diplococcus of Bargaen. A vaccine was prepared and administered in conjunction with dietetic and medicinal therapy. Two months after treatment, he was entirely well.

Case 3—S. M. male, age 38. Was referred to me April 8, 1927, with a history of bloody diarrhea for four months. This patient lost ten pounds in weight and was having six to twelve stools a day, with pus, blood and mucous. Tenesmus and urgency were quite pronounced. After proctoscopic examination, chronic ulcerative colitis was diagnosed. The mucosa of the rectum and sigmoid colon was highly inflamed and ulcerated. A culture was taken from the rectal mucosa and reported to be a gram-positive diplococcus of Bargaen. A vaccine was prepared and administered in conjunction with the usual medicinal

therapy. After three weeks' treatment the patient was having two stools, no blood and felt much improved. August, 1927, patient came to the office. He had regained his lost weight and was having one stool a day. October 20, 1927, he returned, complaining of a recurrence of the diarrhea. He was having his old symptoms. I referred him to a dentist. No doubt he has a focus of infection in his teeth, as the teeth had the appearance of being diseased.

Case 4—J. W. male, age 39. Was referred to me because of intermittent bloody diarrhea up to twenty stools daily with a great deal of mucous, pus and blood. The first attack lasted five weeks, the next three weeks and the last continued for seven months up to the time he came to my office. He had lost twenty-two pounds in weight during seven months. He was having abdominal cramps, with a heavy and full feeling along the course of the sigmoid, extending down to the rectum; he was also complaining of a great deal of tenesmus.

Proctoscopic examination. A highly inflamed granular easily bleeding mucous membrane of the rectal and sigmoidal colon was revealed. A diagnosis of chronic ulcerative colitis was made, culture obtained from mucosa of rectum and reported to be the diplococcus of Bargaen. A vaccine was prepared and administered in conjunction with the dietetic and medicinal therapy. Six weeks after beginning treatment the patient is having two stools a day. The patient was in my office October 8 1927; he had regained his lost weight and having one stool a day. Proctoscopic examination October 8th showed a mucosa, which was scarred, pitted and atrophic.

Case 5—C. F. D. male age 34. Came to my office in February 1927 because of five months of bloody diarrhea of very gradual onset. During the past two months he had been passing twelve to fifteen stools a day with blood pus and mucous, with much tenesmus and abdominal cramps. He had lost fifteen pounds in five months. Except for the diarrhea and abdominal distress he had no other complaint.

Proctoscopic examination. A diagnosis of ulcerative colitis was made. The mucosa of rectum and sigmoid was highly inflamed, granular in appearance. A culture from the rectal mucosa was obtained and reported to be the diplococcus of Bargaen. A vaccine was prepared and administered in conjunction with the routine treatment. In four weeks the patient was having two stools a day and was much improved. He has now regained his normal weight and is having one stool a day.

Case 6—J. H. T., male, age 65. Was referred to me with a history of bloody diarrhea with mucous and pus for six months. He had lost ten pounds in weight and was complaining of abdominal cramps with a heavy and full feeling over sigmoid, tenesmus and burning in rectum.

Proctoscopic examination revealed internal hemorrhoids, a diffuse inflammation of the rectal and sigmoidal mucosa. A diagnosis of ulcerative colitis was made. A culture was taken from the rectal pouch and reported to be the diplococcus of Bargaen. The patient had several teeth extracted and cultured for diplococcus of Bargaen and was found. Vaccine was prepared and administered in conjunction with the usual routine treatment. In one week's time the bleeding subsided and patient was having one normal stool a day.

Case 7—Female, age 35. Was referred to me because of having an intermittent diarrhea for the past five years. She was having as many as fifteen stools a day, with much pus, blood and mucous and rectal tenesmus.

After proctoscopic examination a diagnosis was made of chronic ulcerative colitis. A culture was taken from the ulcerated mucosa of the rectal pouch and reported by Dr. Hillkowitz to be the diplococcus of Bargen. This patient had small embedded tonsils that were questionable. I suggested to Dr. Darrow he aspirate the crypts of the tonsils and have culture made by Dr. Hillkowitz. The report came back he had obtained a pure culture of the diplococcus of Bargen.

About three weeks ago this patient had a tonsilectomy and I understand she had quite a stormy convalescence. One week following the tonsilectomy, I administered 1/10 of one cc of vaccine, which produced a violent reaction. She is now quarantined because of two of her children having scarlet fever. I had a phone call from her a few days ago, stating her stools are down to three a day.

Case 8—Mrs. F. J. D., age 32, weight 115 pounds. Was referred to me by Dr. S., with a history of bloody diarrhea for the past nine months, having from fifteen to twenty stools daily, with blood, pus and mucous. She has lost twenty pounds in weight, complaining of abdominal cramps, discomfort in the rectum and tenesmus.

Proctoscopic examination revealed a granular, easily bleeding mucous membrane of the rectal and sigmoidal colon. A diagnosis of chronic ulcerative colitis was made. A culture was taken from the mucosa of the rectum and reported by Dr. Hillkowitz to be the diplococcus of Bargen.

Patient had her diseased tonsils removed and a culture from the tonsils was made and reported to be diplococcus of Bargen. A vaccine was pre-

pared and administered in conjunction with routine treatment. The patient responded readily to treatment and gained twenty pounds in nine months. At present she is having one stool a day.

CONCLUSIONS

We have presented for your consideration a series of eight cases of chronic ulcerative colitis caused, as we believe, by the diplococcus of Bargen and previously known as idiopathic colitis. In all of them, the diplococcus of Bargen was isolated and a vaccine prepared, the use of which gave gratifying clinical results.

All of the patients presented diarrhea as the predominating symptom. We believe that further study of this condition will prove to be a great advance in the management of a heretofore very troublesome condition.

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THE GOITER PROBLEM*

European as Compared With American

S. D. VAN METER, M.D.

DENVER

The longer we study the goiter problem the more we realize how little is really known, or at least scientifically proven as regards the etiology of the group of diseases of the thyroid which for want of a better name are given the generic title of goiter.

This paucity of knowledge is responsible for the multiplicity of classifications, none of which is satisfactory even to the author. It explains the numerous terms used to mean the same entity which at times prove confusing and lead to erroneous conclusions.

It is unnecessary to look further for an explanation of the existing widespread professional confusion in the diagnosis and treatment of this serious scourge of the human race.

As a rule the cause of a disease is the only foundation upon which it is possible to formulate proper classification and treatment.

Goiter is not an exception. When speak-

ing of the etiology of goiter, it behooves us to be most careful in our statements lest we be misunderstood and add fuel to the fire of existing confusion which must be cleared before any great progress can be accomplished with the problem as a whole.

Particularly should we be careful to segregate theory and opinion from proven facts. Dicta coming from eminent authors too frequently have been accepted as scientifically proven facts and have led to sad disappointment when found to be based on erroneous conclusions. Consequently it is well not to be hasty in accepting the conclusions even of eminent goiter authorities until the facts upon which they are based have been carefully checked and rechecked.

What I have to offer relative to the goiter problem of Europe as compared with ours are personal impressions and conclusions and should not be considered in any other light.

I have for some time believed that the etiological factor or factors in the common

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types of goiter were in some manner dissimilar, varied in intensity or were altered by some unrecognized influence in different parts of this country. A casual review of the European situation strengthens that belief. The several manifestly different features of the disease to be observed in that country compared with that which obtains in America are rather convincing and justify the statement that the European problem is decidedly different from ours, be the explanation what it may.

First of the differences is the great number of pathetic pictures of cretinism and kindred stigmata prevalent in Central Europe, which are comparatively rare in this country. Cretinism is bad enough when encountered as we in America do occasionally, but there is no more pathetic picture than that made by the appalling array of the unfortunate inmates of a Swiss home for cretins. The great amount of cretinism in Switzerland can easily be explained by the many generations of endemic goiter that has existed in sections of that country with a more or less fixed population and many consanguineous marriages.

Two other outstanding differences to be observed and which offer endless opportunity for thought and study are:

First:—The low incidence as to number and severity of thyrotoxicosis in adeno-parenchymatous goiter, notwithstanding the prevalence of this form throughout the Alpine area.

Second:—The infrequency of the toxic hyperplastic (so-called exophthalmic) type without regard to locality.

It is in my opinion impossible to explain why these last two differences exist until we increase our knowledge of the etiology of goiter. It can, however, do no harm to speculate as to possibilities and probabilities, and perhaps by so doing to stimulate research investigation that may replace our woeful ignorance of the cause or causes of the disease with knowledge that would bring order out of chaos and place diagnosis and treatment on a scientific instead of the present empirical basis.

In seeking possible or probable explanation of these two outstanding differences one

is immediately confronted with that important question of whether we have a single disease with protean phases, or perhaps two or more separate and distinct pathological entities. If we agree with Graham, we cannot think along the same lines we would if we follow McCarrison. With an open mind and no assurance which of these eminent students of the goiter problem is right, let it be understood that I for the time being agree with McCarrison. I am convinced that his extensive, conscientious and scientific work justifies the conclusions; that there are several distinct types of goiter, that the toxic hyperplastic (so-called exophthalmic) and the adenomatous types are not phases of the same pathological process, and that the cause of the toxic hyperplastic type is unknown, while the etiology of the adeno-parenchymatous lies in a judicious blend of the **iodine deficiency** and **infectious** theories.

The decrease in the incidence of adenomatous goiter from the source to the estuaries of the water courses that rise in the Alps suggests several things, the correct explanation of which may prove of value in connection with the solution of the problem. Is the variance of the iodine, calcium or other mineral content of the waters responsible? If there be truth in the infectious theory, does the infection become diluted or attenuated in transit from the known markedly goiterous regions before it reaches the sea?

What role, if any, does the iodine content of the water play in reducing the virulence of the infection? May not patients of goiterous families of several generations develop a certain resistance to the toxic agent which reduces its effectiveness in causing the number and severity of cases of thyrotoxicosis? If we could but find correct answers to these questions we could speak advisedly on many things our present lack of knowledge renders impossible. It can hardly be claimed with justification that the variance of the iodine content of the waters of the Netherlands and those of the upper Rhine is solely responsible for the wide difference in the incidence and character of adenomatous goiter in the two countries. Furthermore, the comparative amount of iodine in the

water does not fully explain the variance in the incidence of goiter in different localities throughout Switzerland. It is more logical to conclude that some other etiological factor plays a part in causing the marked difference, especially in sections where the iodine content is practically the same, notwithstanding the fact that as a rule the incidence of endemic goiter corresponds to the amount of iodine in the drinking water. Admitting for the sake of argument that some, as yet unknown, infection is an etiological factor, may not it be influenced by some local conditions that decrease or increase its potency?

The Swiss custom of intense fertilization of their fields and gardens with manure, despite the extreme cleanliness of the people, creates chances of infection by contamination of green food-stuffs alone, sufficient to perpetuate the type of goiter prevalent throughout that country. During the last decade the judicious use of iodine has reduced considerably the incidence of goiter in Switzerland, but in some districts, Lausanne in particular, the results obtained by the use of the drug in the schools as a preventive of endemic goiter have not been so successful as those in America. With the high degree of inherited tendency to be expected in a country where goiter has existed so many decades we should not look for a greater reduction than the statistics show. However, the fact that transportation of patients from that country to non-goiterous communities without change of administration of iodine frequently accomplishes better results, is most suggestive of the existence of some local etiological factor, probably a specific infectious organism.

This idea is in keeping with Crotti's findings of the organism he believes is responsible for endemic goiter in the Ohio Valley.

The most conclusive evidence yet offered in support of the infectious theory is that of McCarrison's observation near Kasauli, India, where goiter had been endemic in a school for sixty-six years. In 1918 a new water supply of **less iodine content** was substituted for that which had been in use. Within four years endemic goiter disappeared from the school. The non-appear-

ance of the disease in new pupils of course was responsible for the rapidity of the decline.

The low incidence of thyrotoxicosis in adenomatous goiter in Europe has naturally had its influence on the surgery of the thyroid throughout that continent. The great majority of thyroidectomies performed are for the relief of pressure symptoms or for cosmetic purposes. Those for toxic symptoms are in the decided minority and with chances being decidedly against occurrence of toxicity the anticipatory operation is seldom recommended or performed. I feel this is wrong, believing that it is good practice to remove all adenoma of the thyroid in the late twenties or early thirties, although they might properly be classed in that uncertain category of "**Inactive**" adenomas. The safety with which they can be removed at that time—the detrimental though perhaps not demonstrable influence they frequently have on the cardiac muscle and general nervous system before the "**explosion**" comes, and the potentiality of carcinoma, fully justify removal without waiting for toxic or pressure symptoms to develop, or for the size of the goiter to become so great as to warrant operation for cosmetic reasons.

In considering the infrequency of toxic hyperplastic goiter throughout Europe, it must be remembered that the population is an old one compared with ours, and that the people are inclined to live generation after generation within narrow fixed boundaries while ours are always changing.

The possibility of long residence in one community, allowing immunity to develop either through inheritance or prolonged exposure to the specific cause, if there be one, warrants consideration.

A fixed population, however, encourages intermarriage and should increase the accepted inherited tendency to the disease. Are we correct in this belief, or does the possible immunity gained by exposure to the cause generation after generation overbalance the factor of heredity and reduce the incidence of this type of goiter to a negligible entity throughout the greater part of Europe?

If there be any justification in the belief that excitement, fast living and emotional excesses cause toxic hyperplastic goiter, Paris would be the city in which we should find it prevalent. To the contrary, this and the adeno-parenchymatous types are comparatively rare in that city.

With the style of dress that has prevailed for several years it is easy to detect thyroid enlargement in people you meet socially or with whom you come in contact in public places. With me it has become a habit when visiting any country to observe the necks and eyes more than other features of the people of the country. During my last visit to Paris I took particular pains to be on the lookout for goiter, but recognized only five cases in that city, whereas goiterous necks in Berne were so numerous the non-goiterous were the exception.

Tuffier, the dean of the surgical profession of France, recently made the statement that in all his years of practice he had not operated twenty-five cases of goiter. This statement alone is indicative of the low incidence of the disease in that country.

Are we right in continuing to accept as true the time-honored dictum that the strenuous life, grief, shock, and emotional excesses are causes of toxic hyperplastic goiter? Are we not placing the cart before the horse? Should we give them any further credit than that of being exciting causes? In all probability they bear the same relation to the thyrotoxic explosion as does fulminate of mercury in the cap to the explosive charge within the cannon shell. We should look further for the real cause which will in all probability be of infectious nature, modified by environment.

The possible if not probable influence of diet and consumption of alcoholic beverages cannot be ignored. French bread as everyone knows is not only sold by the meter, but differs from ours in many ways—perhaps in ways we least expect. May it not be found that vitamins contained in French bread in some way play an important role in the prevention of goiter, especially in the toxic hyperplastic type?

The admirable work of Williamson and

Pearse (1925) demonstrated the development of the "lymph-adenoid" type of goiter in human beings when fed a diet from which fruit and green vegetables were excluded and containing a large percentage of white flour or vitamin-poor carbohydrates. McCarrison with a similar diet produced the same type in lower animals and believes it is the type in which Graves' disease is prone to develop. May not we in the end be forced to forsake our preference for white bread and eat more of the whole-grain varieties? May not the consumption by the people of the South of the much berated corn-pone have something to do with the low incidence of goiter of all types south of the Mason-Dixon line as compared with the northern part of the United States?

If there be an infectious factor in the etiology of this type of goiter, we should in our study of the problem not lose sight of the possibility of local influences peculiar to different regions. These may increase or decrease the power of infection, and it is not improbable that strains of different degrees of virulence exist.

I regret my inability to present nothing further than suggestions of possibilities, instead of definite conclusions relative to the European goiter problem as compared with that of America, but I sincerely hope the questions raised will give food for thought, and stimulate fruitful study that may lead to satisfactory explanation of the cited differences.

Program for Portland Meeting

Under the direction of the program committee of the National Tuberculosis Association, the program of the Portland meeting to be held June 18 to 20 is gradually taking shape. The formal program will begin on the morning of June 18 and will continue with morning and afternoon sessions and one evening session through the afternoon of the 20th. The chairmen of the several sections are as follows: Clinical, Dr. Ralph C. Matson, Portland, Ore.; Pathological, Dr. H. J. Corper, Denver, Colo.; Sociological, Dr. Thomas A. Storey, Stanford University, Calif.; Administrative, Dr. Harvey Dee Brown, Philadelphia, Pa. —Bulletin of the N. T. A.

The new reptile house of the zoölogical gardens in London has a snake hospital containing comfortable beds, a resident physician, a diet kitchen, a battery of artificial sunlight, and an adjoining space where rare bugs are raised for the patients' food.

NEWS NOTES

Dr. and Mrs. C. S. Bluemel will soon return from England. They spent the holidays with his parents and friends at Rugby.

Beginning with January 1st Dr. W. H. Crisp becomes the editor of the American Journal of Ophthalmology to succeed Dr. Edward Jackson who now becomes emeritus editor.

Dr. C. A. Cattermole, formerly of Brighton, has spent a year in Europe in graduate study. He attended the eye, ear, nose and throat clinics of Vienna and Budapest.

The following members were elected as officers of the El Paso County Medical Society for the coming year: President, Dr. J. B. Crouch; Vice-President, Dr. E. D. Downing; Treasurer, Dr. H. C. Goodson; Secretary, Dr. W. A. Campbell, Jr.

The American Association for the Study of Goitre will meet in Denver, June, 1928. It is hoped that the members of the State Society take advantage of this important gathering and extend them a royal welcome. At the request of its president, Dr. G. S. Fahrni, the following committee has been appointed by Dr. G. P. Lingenfelter, president of the Denver County Society: Dr. H. S. Finney, Chairman; Dr. C. F. Kemper, publicity; Dr. E. F. Dean and Dr. Frank Rogers, hospitals; Dr. Donald Cunningham and Dr. Paul Connor, clinical material; Dr. R. G. Davenport, golf and general welcome.

Dr. T. E. Carmody read a paper on "Sinus Diseases in Children," before the Washington Nose and Throat Society, November 9th, and attended the meeting of the American Otolaryngological Board in Memphis.

Dr. F. R. Spencer, of Boulder, read a paper on "Tuberculosis of the Larynx," before the Southern Medical Society, in Memphis, and attended the meeting of the American Otolaryngological Board.

A WORTHY INVITATION

At the thirty-fifth annual meeting of the Association of Military Surgeons of the United States at Carlisle Barracks, Pennsylvania, several of our number were in attendance. The military surgeon published an effective invitation delivered by Lieutenant-Commander G. P. Lingenfelter, which is as follows:

It is my pleasure and privilege to extend to this association a most cordial invitation to hold the next meeting in Denver.

In 1913 you honored us by meeting in Denver and we did our best to entertain you and make your visit a pleasant one. But our hearts are heavy and we are sorrowful for we feel that we must have made a miserable failure of it, because in all the years following you have not returned.

I understand it is the desire of the association to hold its meetings where military problems may be presented rather than papers, and also where it may be of value in increasing the membership.

We now have Fitzsimons, the largest military hospital in the United States, at Denver. Colonel Paul Hutton, M.C., U. S. Army, whom many of you know, and have served with, is the commanding officer and assures me that the entire resources of the hospital are at your disposal. The Lowery Flying Field, one of the best

equipped and largest of the National Guard air service units, is likewise eager to do their utmost to entertain and instruct. At our door is Fort Logan, the present home of the Second Engineers, all on the qui vive to cooperate in any way you desire.

I have here duly signed and attested, invitations from the governor of Colorado, the mayor of Denver, the chamber of commerce and the Colorado State Medical Society and the Medical Society of the City and County of Denver, and the commanding officers of the various organizations, begging you to do them honor by being their guests. And gentlemen, I may say that we of the west do not invite guests unless we really want them.

Would it not stimulate interest in the association west of the Mississippi to hold an occasional meeting there?

"I am a citizen of no mean city," is a statement made ages ago by one who was proud of his home.

Denver is the capital of the largest state west of the Mississippi, except Texas, and if we were rolled out as flat as the Lone Star State, probably we would be the larger of the two. Nor are we troubled with floods, cyclones or the boll weevil.

Colorado is an outdoor region such as no other nation possesses. The deepest canons in the world traversed by railroads, canons so deep and precipitous that we carry the sunlight in through pipe lines, the highest summits in the world reached by rails, the highest points in the world attained by automobiles. Lakes innumerable, outrivaling with their charms a Lucerne or a Constance, clear, beautiful gems, some mirroring the pines, others reflecting the granite face of an awe-inspiring precipice rising a sheer half mile straight up from the shore.

A wild conglomeration of jagged peaks and heroic mountains, in whose sides great moving glaciers have chiseled yawning canons and sculptured gorges—they possess a charm which appeals to the inmost soul of man.

Where is Denver! did you ask? Its portals are only a night and a day from Chicago. Pullmans and observation cars cross the state at elevations of over 10,000 and 11,000 feet. To its guests a-wing, a-wheel, a-horse or a-foot, it is kindly.

The air is dry, crystalline, invigorating both mind and body. The sky is blue and cloudless, except for brief thunderstorms, and then we do not, like the native sons of a much advertised state, exclaim, "How unusual," but we marvel at their rare grandeur.

The variety in scene and pastime is unique and intrinsic of itself—regal nature in her most hospitable mood. It is yours if you will but come.

Our invitation is not like that of the olden time—"Come over to Macedonia and help us," but rather—come to Colorado and help yourself.

World Child-labor Standards

Eighteen countries have ratified the draft convention adopted by the International Labor Office and submitted to the member nations of the League of Nations, which places the minimum age for entrance into industry at 14 years, and twenty countries have ratified that prohibiting night work of minors under 18 in industry, with certain exceptions for those over 16.—Children's Bureau.

CORRESPONDENCE

Dr. C. F. Kemper,
Editor Colorado Medicine,
Denver, Colo.

Dear Dr. Kemper: Relative to the question of publication of Dr. Spitzer's paper and my discussion of it at the State Medical Society, I have, as you already know, decided not to hand in my discussion, and request that in the event that the publication committee finally decides to publish Dr. Spitzer's paper, my remarks be left out entirely.

I further wish to protest the publication of the paper for the following reasons: First, the paper could not be read within the fifteen-minute period as required in Sec. 6, Chap. 4 of the By-Laws. I doubt very much if the essayist would have reached that part of the paper which I discussed had it been read as it at present appears.

Second According to Sec. 7, Chap. 4, of the By-Laws, the paper should "be deposited with the secretary when read." The paper as such was not read.

Furthermore, the most important reason is to the effect that it is not fair to those men who carefully prepare and read their papers at the state medical meetings to allow any member of the Society, unless he be president or appointed orator, to deliver an unwritten address on any subject.

Yours very truly,
TRACY R. LOVE.

WOMAN'S AUXILIARY NOTES

The San Juan unit of the Woman's Auxiliary which has been organized less than one year, has been instrumental in placing "Hygeia" in the reading room of the public library in Durango.

The members have also assisted with the annual roll call of the American Red Cross and with the sale of Christmas seals for the prevention of tuberculosis.

Meetings of this unit are held four times a year on the second Saturday in January, April, July and October, at the same time as the meetings of the men's organization.

The annual election of officers for Denver County Auxiliary will be held at the next meeting on January 16th.

Plans are now under way to hold a benefit bridge party at the new nurses' home of Denver General Hospital. The proceeds are to be used to buy books for the nurses' library to assist in bringing it to the standard maintained by training schools of this class.

ERRATA IN MEMBERSHIP LIST

In the list of members published in the December issue of Colorado Medicine the following corrections should be made:

Add the name of J. A. Morehouse of Sterling, Colorado, member Northeast Colorado Medical Society.

Add the name of W. H. Twining, Aspen, Colorado, member of the Garfield County Medical Society.

Add the name of Haskell M. Cohen, Denver, Colorado, member of Denver County Society. Delete the name of F. M. Cohens, Denver, listed as member of the Denver County Society, retaining Dr. Cohen's name as a member of Lake County Medical Society.

F. B. STEPHENSON, Secretary.

MEDICAL SCHOOL ADMISSION
UNIVERSITY OF COLORADO

In conformity with the wishes of the Colorado State Medical Society, as expressed at the recent meeting in Glenwood Springs, the following data regarding admissions to the School of Medicine is submitted:

Requirements for admission: Candidates for admission must fulfill the entrance requirements of the College of Arts and Sciences of the State University, and present in addition ninety quarter hours (or sixty semester hours) of collegiate work completed in a college approved by a recognized accrediting agency.

The following subjects are prescribed:

One year Physics, a complete course with laboratory, totalling at least twelve hours.

One year Biology, at least twelve hours; must include six hours laboratory, and not more than six hours of Botany.

One year Modern Language, fifteen hours, French or German.

One year English, nine hours, Composition and Rhetoric.

One year Chemistry (general inorganic), fifteen hours; must include six hours laboratory.

A complete course in Organic Chemistry, at least nine hours; must include two hours laboratory.

Applications for freshman admission consist of proper application blanks including a recent photograph, two character reference blanks and complete credentials of both high school and college work. Applications must be in the Dean's office not later than June 25th. The class for the ensuing year is selected on July 1st.

Preference is given in every instance to applications from residents of Colorado.

The present equipment does not permit of an admission of more than sixty-five students in the freshman class and not more than fifty students in each of the three upper classes.

GENERAL REPORT ON ADMISSION
(Freshman) Year 1927-28

Total number applications received before July 1, 1927	128
Number accepted for admission	69
Number not accepted for admission	59

Colorado resident applications received	59
Colorado resident applications accepted	51
Colorado resident applications not accepted	7

Reasons for not accepting the 7 Colorado applications:

Rated very low in premedical work by both Denver and Colorado University	1
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Rated very low in premedical work by Denver University	1
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Application not complete	1
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Application withdrawn	3
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Applications for readmission from students admitted in 1926 and dropped during year on account of very poor scholarship	3
---	---

Applications from State Schools:		
University of Colorado	28	Accepted 27
University of Denver	22	" 16
Colorado College	3	" 2
Agricultural College	2	" 2

GENERAL REPORT ON REGISTRATION
Year 1927-28

Total number accepted by committee on admissions for admission to Freshman class	69
--	----

Total number who registered	59
Reasons given by successful applicants who did not register:	
Inability to take the Honor System oath	1
Inability to clear premedical deficiencies	4
Illness in family	1
Financial difficulties	2
No reasons given	2

FACTS CONCERNING FRESHMAN CLASS

Men students	58
Women students	1
Married students	4
Unmarried students	55

Students With Degrees:

A.B.	13
Ph.G.	1
D.V.M.	1
B.S.	1

Birthplaces of Students:
United States:

Colorado	23
Kansas	4
Illinois	3
California	3
Missouri	2
New York	2
Alabama	1
Connecticut	1
Indiana	1
Iowa	1
Kentucky	1
Maryland	1
Michigan	1
Minnesota	1
Nebraska	1
New Mexico	1
Ohio	1
Oklahoma	1
Pennsylvania	1
Virginia	1
Washington	1

Foreign Countries:

China	1
Holland	1
Japan	1
Philippines	1
Russia	2
Korea	1

(Son of American missionaries)

Religions Represented:

Protestant—	
Presbyterian	12
Methodist	12
Baptist	5
Episcopalian	4
Congregationalist	2
Christian	2
Unitarian	1
Reformed	1
Evangelical	1
Disciples of Christ	1
Roman Catholic	4
Jewish	11
No religion stated	3

Occupation of Father:

Accountant, bookkeeper, etc.	3
Agent	2
Baker	2
Brewer	1
Canner	1
Clothes Peddler	1
Dentist	2
Express Employee	1
Farmer	4
Gardener	1
Mechanic	2

Merchant	7
Millman (Lumber)	1
Mining	2
Miner	1
Minister	1
Missionary	1
Oil business	1
Physician and Surgeon	7
Postmaster	1
Professor	1
Proprietor, hotel, restaurant, etc.	2
Railroad employee	2
Railroad official	2
Real estate	3
Stationary engineer	1
Stockman	1
Superintendent, coal mine	3
Veterinary surgeon	1
Field secretary of college	1

M. H. R.

BOOK REVIEWS

Tobacco and Physical Efficiency. A Digest of Clinical Data, with Annotated Bibliography. By Pierre Schrumpf-Pierron, M.D., Professor of Clinical Medicine, University of Cairo. Preface by Henri Vaquez, M.D., Professor of Medicine, University of Paris, Published under the Auspices of the Committee to Study the Tobacco Problem, with a Foreword by Alexander Lambert, M.D. President. Paul Hoeber, Inc., New York, 1927. Price, \$1.85.

This is a small volume, the third of a series, published under the auspices of the Committee to Study the Tobacco Problem.

Essentially it is a collection of information, from many sources, which will bear out the experiences of practitioners generally that nicotine is a drug which is subject to wide variation in its effects upon the individual. These effects, in some users, are entirely functional as is the case with the moderate smoker. Under some circumstances organic changes are possible.

This volume had best be kept out of reach of the professional uplifter; otherwise, the committee may, in the near future, be justly charged with having contributed to legislative delinquency.

WILFRED S. DENNIS.

Clinical Diagnosis by Laboratory Methods. A Working Manual of Clinical Pathology. By James Campbell Todd, Ph.B., M.D., Professor of Clinical Pathology, University of Colorado, and Arthur H. Sanford, M.D., Professor of Clinical Pathology, University of Minnesota (The Mayo Foundation); Head of Section on Clinical Laboratory, Mayo Clinic. Sixth Edition, Revised and Reset. Octavo of 748 pages with 346 illustrations, 29 in colors. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, \$6.00 net.

The old favorite of the laboratory, Todd's Clinical Diagnosis, again comes to us in a new edition, this time with the collaboration of Dr. A. H. Sanford of the Mayo Clinic. Colorado physicians have been justly proud of the cordial reception accorded to Professor Todd's volume since its first appearance twenty years ago, and have watched with pleasure the increasing popularity of the book, many pages of which were written in the sick bed and under trying circumstances. It is gratifying to Dr. Todd's friends that he has associated with him a clinical pathologist of such wide experience as is afforded by the vast clinical material of the Mayo Foundation.

The present edition runs along the same smooth and lucid course as the preceding ones. The size has been considerably increased and new material incorporated, special emphasis having been laid on methods and microscopic morphology. Each chapter has been revised so as to include new tests that had come up since the last edition. Considerable attention has been devoted to animal parasites as they are becoming more and more important in laboratory work even in the temperate zones.

The plates and numerous illustrations, including many drawings and microphotographs form, as before, a valuable feature of the work.

PHILIP HILLKOWITZ.

Urography. By William F. Braasch, M.D., Head of Section of Urology, Mayo Clinic; Professor of Urology, Graduate School of Medicine, University of Minnesota. Second Edition, Revised and Enlarged. Octavo of 480 pages, Illustrated with 759 Roentgenograms. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, \$13.00 net.

"Urography," published by the W. B. Saunders Company, and just out, is really the second edition of "Pyelography," published by the same firm, and by the same author, in 1915. The reason for the change in title is at once evident to the reader of both works, because, while the first edition dealt with pyelography and ureterography, the second edition deals with both of these subjects, bringing them to date, and with cystography and urethrography as well.

No one is as well fitted to write on this new subject as the author, nor has anyone the facilities to acquire a knowledge of the subject as thoroughly as has Braasch. This second edition is written in collaboration with Benjamin H. Hager, associate in Urology at the Mayo Clinic, and credit is given to numerous co-workers.

Practically this entire work is original. To be sure, the author has drawn from where he could, but these sources of information have been all too scant, and he has, perforce, been compelled to draw almost entirely from his own work.

There is no doubt but that as time advances, this extremely important addition to not only urology, but abdominal diagnosis as well, will be enlarged upon. In all probability, the co-relation of the pathology found at the operating and the autopsy tables with the filled roentgen pictures will change many of our views and opinions. In the meantime, however, this work is really the epitome of our knowledge on the subject, and while, perhaps, the illustrations are not quite as clear-cut as the recent, "Die Harnorgane im Röntgenbild," by Eugen Joseph, the latest and best German work on the subject, yet it carries more information and is of much more use to the worker in this field than Joseph's work.

The trouble with the science of reading filled roentgen pictures of the urinary tract lies not with the science, but with the lack of knowledge on the part of the individual who is not willing to devote his time to the study of such science. For this reason, he who does not read everything he can acquire on the subject, and who does not draw therefrom his own conclusions, is wasting his time when he fills the urinary organs and takes such pictures.

This work is indispensable to all urologists and to all roentgenologists; he who would improve his diagnoses on abdominal conditions cannot afford to be without it; as a reference work it should be in every surgeon's literary armamentarium; and all general medical libraries must, of course, add it to their list of works.

WILLIAM M. SPITZER.

History-Taking and Recording. By James A. Corscaden, M.D., Associate in Obstetrics and Gynecology, Columbia University, New York. Paul B. Hoeber, Inc., New York, 1926.

This little book is written concisely and clearly, taking up the necessities, values and method of taking histories. It is to be considered excellent for reference in planning the adoption of printed forms for routine history. It is not complete enough for the medical student, but is filled with suggestions which would, undoubtedly, be of value to the physician just forming the habit of keeping written records. It also consists of the proper terminology employed in history taking. It is therefore a handy and valuable reference which is written concisely and the outlines are extensive enough to use in making forms of histories to be used by the general practitioner.

HARRY H. WEAR.

LATENT TUBERCULOSIS IN CHILDREN

Opie defines latent tuberculosis as tuberculosis unaccompanied by significant symptoms or physical signs. It is recognizable by the tuberculin test and by roentgenological examination and after death by characteristic tuberculous lesions. In many cases it is a trivial infection, but in others it is a source of clinically manifest disease. Within certain limitations latent infection can be recognized and its intensity measured.

The infection may continue to progress by way of the lymphatics, and later by the blood stream, when general dissemination may lead to tuberculous meningitis and death. In early infancy general dissemination most frequently occurs, but there is more resistance during the second half of the first year. With increasing frequency, as age progresses, tuberculosis is arrested within the nearest lymph nodes, encapsulation occurs, and finally the caseous center of the lesion undergoes calcification. During the period of uncertain balance between extension of the infection and recovery, environmental conditions may decide in one direction or the other. Herein lies the gravity of latent tuberculosis, including as it does, active anatomically progressive lesions with the potentiality of fatal disease on the one hand, and on the other, healing or healed lesions, which have passed the period of danger.

Distinction must be made between tuberculosis of children and of adult life. The outstanding feature of tuberculosis of infancy and early childhood is the spread of the infection from a primary focus in the parenchyma of the lung to adjacent tracheobronchial lymph nodes. There is no evidence that the first infection is at the hilum of the lung. The typical tuberculosis of adults has two outstanding characters; namely, localization and chronicity. It is limited to the lungs, and in many instances never extends below the apex, while the lymph nodes at the hilum are not significantly implicated.

Opie disputes the belief that the apical lesion of adults is derived from the focal lesion of childhood. But the adult type of pulmonary tuberculosis is not uncommon in the second decade of life, in which sense the disease of adults may have its origin in the later period of childhood.

WYOMING MEDICINE

President, A. P. Kimball, M.D., Casper
President-Elect, F. A. Mills, M.D., Powell
Secretary, Earl Whedon, M.D., Sheridan
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Fred Horton, M.D., New Castle
George L. Strader, M.D., Cheyenne

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

THE BIG SLEEP

We pride ourselves on our education, and yet a large part of these boasted achievements are in reality bunk.

Take the question of sleep.

The western Indian knows more of the real joys of sleep than all the rest of the so-called civilized world.

That's a strong statement, but you can prove it to your own satisfaction if you will but try his way.

No million-dollar palace has in it the life-giving sleep an Indian teepee offers its owner. Man invents what he thinks are improvements in the way of living only to find that these so-called improvements are in fact disadvantages and only tend to shorten his life.

For years the Indians knew no other home than the teepee, and yet as soon as the government insisted on his building and living in houses the death rate among the Indians began to increase, and it is still on the increase.

The Indian teepee made of canvas or even thin muslin is so far superior to any modern tent that there is no comparison. If you can get one do so by all means and enjoy sleep as you never have before.

On account of the ventilator at the top where the poles cross and the upward current of air through it no flies or mosquitoes are ever found in a teepee. The air is always fresh, yet free from draughts.

The beneficial rays of sunshine are not kept out as in glass houses, and outside of the dripping from the poles as the rain trickles down these until it has reached the

ground and this forms a run way, there are no disadvantages. A canvas sheet fastened to the top of the bed can be quickly thrown over it for protection from any rain drops and as quickly removed when the rain is over. Wind storms do not affect the teepee like the straight walled tents of modern construction. Plenty of warm bedding below and above, warmed bricks or hot water bottles placed in the bed before retiring, make the bed comfortable even on cold nights and the big sleep, even as it is tonight with the thermometer standing at fourteen below zero, puts more pep into you than anything else can do.

Get an Indian teepee and enjoy the big sleep. After five years' sleeping in an Indian teepee we certainly can recommend one for every family. We are not agents for them, but we do know your lives will be happier if you enjoy one in your own backyard. Why not enjoy the big sleep?

E. W.

PLASMOQUIN

The recent research work done in Germany has developed a synthetic quinine evidently from the coal tar group.

Just what advantages it may possess besides taking away the bitter taste—always a disadvantage, and one of the chief objections by the small boy in its use are as yet unknown.

Possibly the cost may be greatly reduced. This new discovery is known as "Plasmoquin" or "Plasmoquin," and although its exact chemical formula is not given, other research workers will doubtless discover the

chemical secrets and market it under some other name.

Modern medicine has not yet been able to do without quinine, and it remains one of the truly valuable drugs, not alone to the practice in tropical climates but in the West as well.

E. W.

TUBERCULOSIS IN WYOMING

So far as we know there has been no recent survey of the state of Wyoming to determine the number of cases of tuberculosis in the state. Nothing has been written in recent years giving any reliable figures as to the number or percentage of cases developing in its native born citizens.

The opening of the Wyoming Tuberculosis Sanatorium May 24th of this year marks the beginning of state work by sanatoriums. Dr. S. O. Watkins, formerly of the Los Angeles Tuberculosis Sanatorium, is in charge. This institution is located at Basin in the Big Horn Basin in the northwest part of the state.

The present capacity is thirty patients and only fourteen of these beds are now occupied. Either pay or free patients are accepted.

During over twenty years of practice in Wyoming we have not seen more than one case a year of tuberculosis of the larynx, although we confine our practice to diseases of the eye, ear, nose and throat.

That the chances for tuberculous infection in Wyoming are perhaps the lowest in any state is self-evident, and that should be one more reason for thankfulness by every citizen.

No organized effort has or is being made to draw this class of patients to Wyoming.

The only appeal being made for outside visitors is that made by nature to visit our wonderful mountains and the entire state as a most suitable location in business enterprises.

True, we have our "Dude Ranches" scattered more or less over the state, but the class of people who come to us on these ranches are summer guests bent on pleasure in the great outdoors rather than trying to regain lost health.

This very freedom of disease ought to be a great drawing card and one that all thoughtful people should think of when considering a summer outing or a future home.

We may be accused of selfishness in our attitude, but self-preservation is one of nature's greatest laws, and we are thankful for our freedom as we enjoy one of the most healthful spots in this great land of ours. You can pick out a Wyoming citizen when on an eastern visit by the ruddy complexion and the general healthy appearance. The great outstanding difference is that out-door life in the bright sunshine, good, clean air and plenty of life-giving food.

Those are all nature's best remedies for the threatened tuberculosis subject. Why not tell the world?

E. W.

Has the Federation a Definite Policy?

Retrospect is essential in every avenue of human endeavor. Without it we lose the sense of progress. The Federation is still too young to have many traditions, but since its organization fifteen years ago it has faithfully endeavored to fulfill the objects and purposes as defined in the constitution, viz., to develop and maintain reasonable high and uniform standards of medical licensure.

Through the medium of the Federation Bulletin and the annual meetings the unity and cooperation of state boards with other interested agencies has been accomplished. With the extension of its influence the time would seem to have arrived for the Federation to indicate a more decided policy in regard to several important problems intimately concerned with medical licensure.

The Federation is deeply interested in the new movement of basic science examinations now adopted in several states, and yet in no way has it indicated a policy favorable or unfavorable to it.

Annual registration is written in the law of a dozen states, and is assuming an important role in enforcement measures against irregular practitioners. An official endorsement by the Federation would insure a general adoption within a very short time.

Every discussion on the subject of interstate endorsement versus reciprocity has clearly shown that the former method is far more logical than any reciprocity agreement. Why cannot the Federation place its stamp of approval on interstate endorsement and thus insure its general adoption?

There are several other measures in regard to which the Federation should maintain a definite policy, and unless action takes the place of discussion the effective influence that the Federation is now able to exert will gradually be lost. It is to be hoped that a new spirit of action will pervade the next annual meeting.—Federation Bulletin.

The language spoken by the Eskimos from Greenland to Siberia is so similar that widely separated tribes would not have much difficulty in understanding one another.

CLOSURE OF THE ABDOMINAL INCISION

F. C. BUCHTEL, M.D.

DENVER

The importance of a secure closure of the abdominal incision cannot be over-emphasized.

A method I have been using for two years consists in the passage of heavy silk tension sutures through all the layers of the abdominal wall and tying them over a glass rod on each side of the incision. The same general principle has been utilized for many years in tying the tension sutures through buttons. A glass rod extending the full length of the incision is a great improvement over a button in that greater firmness and security are obtained by equalizing the pressure throughout the whole length of the incision. The patient's comfort is greatly enhanced by the use of the rod. Six sutures of No. 14 silk are used. They are passed in pairs, at the upper, middle and lower parts of the incision. The sutures are passed from within outward. The needle enters the peritoneum one-quarter inch from its edge and emerges from the skin over an inch from the incision. As soon as the sutures are passed they are tied over the rod on the operator's side of the incision. The first assistant then makes traction on the sutures on his side of the incision, thus approximating the two sides of the wound. Tension is relieved and an easy closure of the peritoneum is facilitated. Patients with acute inflammatory abdominal lesions are at times very hard to close without tearing the peritoneum. Not infrequently is more time consumed in closing the incision in such a case than in doing the intra-abdominal part of the operation. The value of the above mentioned procedure is very great in this type of case. The peritoneum and transversalis fascia are closed with double plain No. 2 cat gut used as a continuous suture. The suture line is placed farther back from the peritoneal edge than that pierced by the silk tension suture. This overcomes the usual objections to the use of through and through sutures. The silk is en peritoneal, not intra peritoneal after the first row of cat gut suture is properly placed. The accurate and complete water-tight approximation of the

peritoneum and transversalis fascia is the most important step in closing any abdominal incision. Great care should be taken that the transversalis fascia is included in the peritoneal suture. This layer sometimes slips back a little ways from the peritoneal edge and unless care is exercised this most important layer remains unsutured and a hernia is apt to result from the error.

Sir Berkley Moynihan describes what might be termed the standardized method of closing the abdomen. He says this method of closure has been perfectly satisfactory. The method he describes and half a dozen modifications of this method, in my hands, has occasionally been followed by a blown incision and by a ventral hernia. These same humiliating and serious accidents have been experienced by many of the best surgeons in America. Mr. Moynihan says that the anterior sheath of the rectus forms the most important barrier in the abdominal wall. I am so sure that this statement is fallacious that in operations, such as appendectomy for a ruptured gangrenous appendicitis, where I expect a serious infection of the abdominal wall, I have omitted entirely suturing the anterior rectus sheath and skin approximation. The silk tension sutures tied over glass rods and a careful approximation of the peritoneum and transversalis fascia have constituted the only closure of the incision. Gauze soaked in flavine or mercurochrome has been packed deeply into the muscle layer. In all cases excepting the potentially badly infected abdominal wall the anterior rectus sheath is closed with chromic gut and skin approximation is obtained by skin clips. Tying in place the second glass rod is the last step in our closure. Sufficient tension is here used to take all strain off the cat gut sutures. These tension sutures tied over rods bring all the layers of the abdominal wall closely together. No dead spaces for fluid collections are left so healing by first intention is facilitated.

The mechanical principle of relieving tension in the above manner is sound. It is

different mechanically and vastly superior practically than tension sutures tied over the incision. For two years we have used this method of closing the abdomen in all upper abdominal cases and in lower abdominal cases in very fat individuals without a single blown incision and without a post-operative hernia. I feel that we have used it successfully in a sufficient number of cases to recommend it unreservedly.

DISCUSSION

Leonard Freeman, Denver: Dr. Buchtel has handled an important subject well. As he himself says, it is a subject that could be discussed indefinitely.

I agree with him that the Fowler position, as usually exploited by the average nurse, is totally inadequate, the patient usually slumping down until the upper portion of the abdomen is no higher than the lower. The mere fact that a patient is on a Fowler bed does not remedy this. Some means must be employed to prevent slipping if the position is to be maintained.

In discussing the question of post-operative emboli, one should remember that there are, from a clinical standpoint, two kinds of pulmonary emboli—smaller ones that pass through the pulmonary artery and lodge in the lung, and larger ones that lodge in the artery.

As is well known, pulmonary emboli most fre-

quently follow abdominal operations, particularly those performed within the pelvis. It usually is taken for granted that these emboli, both small and large, come from thrombi in the pelvic veins. This assumption may or may not be true of the smaller emboli, but it probably is not true of the larger ones—those that stick in the pulmonary artery—because they are too large to have come from any of the veins in the pelvis.

Recently Aschoff has called attention to the fact that all of the emboli which lodge in the pulmonary artery and so often cause sudden death, when carefully unfolded, as he has done in many instances, are found to be from 15 to 40 cm. in length and as large around as a finger. This manifestly means that they could not come from the pelvic veins; in fact, the only place they could come from would be a femoral vein. He regards these femoral thrombi as due to stasis of blood in the vein, arising from a weakened circulation following operation, combined with absolute inactivity in the recumbent position. He does not consider that sepsis enters into the causation necessarily. His remedy is frequent passive flexion of the thighs upon the abdomen, with moderate elevation of the lower extremities to facilitate the return-flow of blood. He ventures to predict that if these things are done, pulmonary emboli practically will never occur.

I know of a large clinic in which passive flexion of the thighs has been carried out as a routine for years, merely as a matter of exercise without reference to emboli. They are able to report 1,000 operations for uterine fibroids without a pulmonary embolus, which certainly is a suggestive record if not convincing.

NEWS ITEMS

Dr. J. C. Carr, who has been located for some time at Acme, is going to move to Sheridan and be associated with Drs. V. J. Keating and F. A. Dolan.

Dr. Earl Whedon was called to Los Angeles, Calif., on account of the serious illness of his mother, who has since that time died.

The annual dues of the members of the Wyoming State Medical Society are due and payable during the month of January each year. Have you paid your secretary yet? If not, do it now. Don't put it off, because Sec. 5 of Chapter 12 of the By-Laws provides: "Dues are payable on January 1st and become delinquent on February 1st of each year. The membership card of this Society, duly signed and dated by the secretary, shall be considered the only bona-fide evidence of payment of dues or membership in this Society." This means that if you do not pay your dues in January, and wait until June to pay them, if any medical mal-practice suit is started against you any time from January 1st to the time you actually do pay them, you are out of luck so far as the State Medical Defense Committee is concerned, you will have to paddle your own canoe, and we don't want you to do that. Give your county secretary a ten-dollar bill, and do it now. If you are not a member of any county society, send the ten dollars to Dr. Earl Whedon, Secretary, Sheridan, Wyoming.

The following names were omitted from the membership list as published in the December number of Colorado Medicine:

E. L. Jewell, Shoshoni, Fremont county.

W. H. Bryant, Casper, Natrona county.

P. J. Clark, Powell, Northwestern county.

A. G. Hamilton, Thermopoliis, Northwestern county.

W. H. Roberts, Sheridan, Sheridan county.

A. T. Taggart, Parkman, Sheridan county.

E. W.

The Leslie Dana Award

Dr. Lucien Howe, whose name needs no added fame, was the recipient of the Leslie Dana Medal, awarded each year to one selected for outstanding contribution to the service of saving sight. Before a representative audience in St. Louis, Missouri, Mr. Lewis H. Carris, managing director of the national committee for the prevention of blindness, bestowed the golden token, concluding with the following words:

"The Leslie Dana Medal is awarded to Dr. Howe in recognition of his initiative in law, science and the art of medicine for the prevention of blindness.

"Insofar as the spirit of this medal goes far beyond the intrinsic value of this gold or the compass of this disc, do we consider it a fitting award to a dear and worthy friend, Dr. Lucien Howe. It gives me great pleasure and pride to present it to you in behalf of the Missouri Association for the blind, Mr. Dana, and the national committee for the prevention of blindness."

In prefacing his remarks, Mr. Carris pointed out the fittingness of the bestowal, since Dr. Howe is known as the "Father of Ophthalmia Neonatorum Legislation"; has been associated in the study of hereditary blindness for many years; and has recently, with his family, given \$250,000 toward the establishment of the memorial institution known as the Howe Laboratory of Ophthalmology at Harvard University, of which he is the director.—National Committee for the Prevention of Blindness.

TUNING IN

Tuberculosis on the Run

The outlook for the future is most promising. Data are now available for insured wage-earners for the early months of 1927. A sharply declining death-rate from tuberculosis has been observed in the industrial population during the current year. In the first six months, the mortality from pulmonary tuberculosis declined 7.1 per cent from the figure for the corresponding period of last year. At the end of the half year the death rate for white lives was at the astoundingly low figure of 70.3 per 100,000. A gratifying, although smaller rate of decline was recorded for colored persons insured in the Metropolitan Industrial Department. There are strong indications that the improvement is general throughout the country, and that it is not limited to any one race. There is every reason to believe that when figures become available for the general population, corresponding improvement will be shown, because the mortality experience of the millions of Metropolitan Industrial policyholders has always been found to be a sensitive index of what is occurring in the population as a whole.

It has recently been suggested that the time is in sight when tuberculosis will no longer be a scourge of both early adult and middle life, but will soon take its position as a relatively minor cause of sickness and death. It should always be borne in mind that it is an infectious disease and that, as such, it is subject to certain limitations which have been found to affect other infectious diseases. There are certain epidemiological characteristics of tuberculosis which may play an important part in the further reduction of the death rate. With fewer deaths, there will be correspondingly fewer advanced cases of tuberculosis. A reduction in the number of advanced cases will reduce the number of primary infections, inasmuch as each advanced case is a focus for new infection. It is entirely possible that a point will soon be reached at which the number of new cases, due to infection from existing advanced cases, will be insufficient to maintain a significant level of new infections.

This suggests, at least, that tuberculosis must either ultimately disappear or become a relatively rare disease. We may, then, look forward to new and to sharp declines in the tuberculosis death rate in the not distant future.—Dublin & Van Buren of the Metropolitan Life Insurance Company.

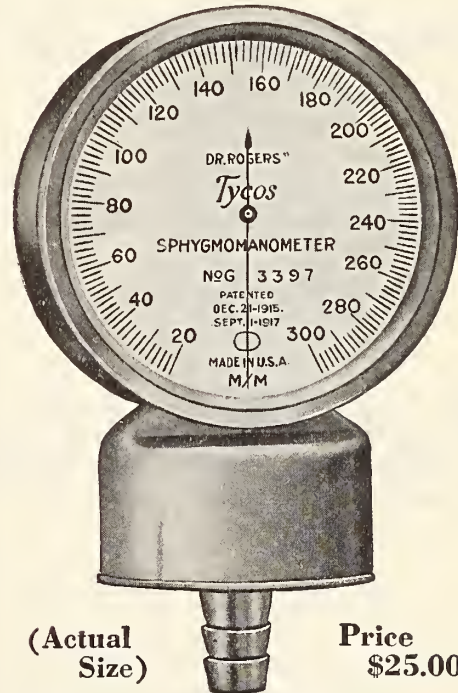
The Dangerous Age in Employment

Children 16 and 17 years of age suffer proportionately more injuries while at work than children either older or younger, according to a recent report of the Wisconsin industrial commission on child labor in that state.—Children's Bureau.

According to some physicians it is inadvisable to disturb a biting mosquito, for the reason that he first injects a poison to dilute the blood and then when the meal is over will suck the poison back again. If the mosquito is driven away the poison remains, causing the pain and swelling of mosquito bites.—Dearborn Independent.

According to Herr Emil Ludwig, Otto von Bismarck smoked a hundred thousand cigars and drank five thousand bottles of champagne in five years.

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Is Cancer Increasing?

A recent statement by Dr. Frederick L. Hoffman in which he points to increasing cancer death rates as showing that the war against cancer is not producing results has been answered by Dr. Francis Carter Wood in a letter to the New York Times which deserves more than passing mention.

Dr. Hoffman's statement is based on the mortality statistics of one hundred and nineteen American cities. He finds it "amazing" and "terrifying" that in most of the large cities of the United States the crude cancer mortality rate exceeds 100 per 100,000, and says that "the cancer record for 1926 is a dismal indictment of the failure of modern efforts to check the ravages of this dreadful affliction."

Dr. Wood in reply points out that there are other reasons than the one assigned by Dr. Hoffman for this apparently high rate. When a cancer is discovered, say in a country person, in an operable stage, the sufferer is usually sent to a city where the resources of large, scientific institutions are available; for almost always these are located in the large cities. And when a cancer is found in an inoperable stage, the patient is often sent to the city where his suffering may be alleviated and where he may receive proper care. Therefore, the cancer death rate of cities is higher than it would be if only the actual city population were taken into account.

Then, too, Dr. Wood says, it must be remembered that more correct diagnoses of cancer are made than formerly, as the ability to recognize cancer is increasing. Dr. Wood holds that when all cases of cancer are diagnosed and reported correctly, the rate will increase and then remain stationary, as it has in Switzerland. There, he says, post-mortem examinations are made in a large proportion of the deaths, and cases of cancer which have escaped diagnosis are discovered. In the United States an exceedingly small proportion of post-mortem examinations are made, and Dr. Wood estimates that at least 40 per cent of the cases of cancer remain unrecognized. He says that the rise in the recorded rate, as reported by Dr. Hoffman, "does not mean that the disease is increasing; it merely shows improvement in the diagnostic ability of the medical profession."—American Society for the Control of Cancer.

Hopkins Adopts Quarter System

A new curriculum will become effective in part next year and in full the following year at Johns Hopkins University Medical Department, arranged on the basis of four quarters of eight weeks each for the academic year. Required work will be confined to a minimum in each major department, with an aggregate of 2,600 hours of instruction in the required courses, leaving about half the student's time for courses of his own selection. Term examinations will be discontinued next fall and group examinations substituted. Examinations in the preclinical studies will be held at the end of the second year and in the clinical subjects at the end of the fourth year; they will be along more comprehensive lines than the present detailed type of examinations.—National Board Bulletin.

Gutta-percha was unwittingly discovered by Dr. Thomas W. Evans, a Lancaster, Pennsylvania, dentist, while looking for a substitute for gold foil for tooth fillings.—The Dearborn Independent.

Small Girl: "Grandpa were you in the Ark?"
Grandpa: "Certainly not, my dear."
"Then why weren't you drowned?"

THE CLINICAL WEEK of the AMERICAN COLLEGE OF PHYSICIANS will occur

MARCH 5-9, 1928—NEW ORLEANS, LA.

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Third, to readjust the mineral constituents.

Fourth, to make a mixture so palatable that it will be readily taken without urging.

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Human Voice Would Need Eight Hours to Travel from Denver to London

If the human voice possessed sufficient volume to carry it from Denver to London, England, it would require eight hours for it to make the journey, according to Bancroft Gherardi, vice president American Telephone & Telegraph Company. Mr. Gherardi made this statement during an address he delivered before a recent gathering of Denver telephone men.

The American Telephone & Telegraph Company is now outdoing a human voice of the caliber just described. By means of its newly-perfected radio and telephone service between America and England, it is carrying the ordinary human voice across the ocean in a fraction of a second.—Public Service Bulletin.

Health and Sunlight in England

The "summer peak" of infant deaths has disappeared from the annual charts of infant mortality in England, and summer has become the safest part of the year for babies, according to Dr. Saleeby, chairman of the Sunlight League, speaking at a meeting during the National Baby Week recently held in London. It is now the dark first quarter of the year which is the most dangerous time for infants, but Dr. Saleeby expects improvement there through the operation of the new smoke abatement act which came into force last July, and which he believes will add an appreciable percentage of ultra-violet light to the cities.—Children's Bureau.

Alabama T. B. Analysis

The attention of all state secretaries is called to the very excellent "Graphic Analysis of the Tuberculosis Problem in Alabama," which has been prepared and published by the Alabama Association. It sets forth very clearly in tabular and graphic form the tuberculosis situation in that state according to age, sex and race. The pamphlet is multigraphed so that it is not an expensive edition and contains approximately twenty-four or twenty-five pages. It is the sort of study that every state should make regarding its tuberculosis mortality and it is commended to the state secretaries as a sample of what can be done simply and inexpensively to present the problem in any state.—Bulletin of the N. T. A.

New York City to Have Census of the Chronically Ill

The research bureau of the Welfare Council of New York City is shortly to conduct an investigation of the income, expenditures, programs of activities and fields of service of the 1,200 health welfare and social agencies in the city.

It will include an inventory of the health promotion and medical service resources of the city and a census of the chronically ill.

In general they are seeking information about the total social needs of the community, the ways in which the agencies are meeting those needs at the present time, some yardsticks to measure the amount and trend of poverty, ill health, etc., and the success of efforts to deal with these problems.—Health News.

Music and Anatomy

A child had been to Sunday School to hear a missionary lecture. When she returned her father asked her if the lecturer had told her about the poor heathen. "Oh, yes!" she replied, "he told us that they were often hungry, and when they beat on their tum-tums it could be heard for miles."—Exchange.



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MEETING OF THE NATIONAL COMMITTEE FOR THE CONTROL OF BLINDNESS

The World War has indirectly resulted in a considerable increase in blindness in the United States and other countries wholly aside from the soldiers who lost their sight as the result of injuries in battle—this was revealed at the Thirtieth Annual Meeting of the National Committee for the Prevention of Blindness here tonight (December 15). Dr. Park Lewis, of Buffalo, one of the founders and vice-president of the committee, in an address on "The Prevention of Blindness, a World-Wide Problem," and Lewis H. Carris, managing director of the organization, in his annual report, both touched on the manner in which the war has served to increase our blind population.

"After the Uapoleonic wars," Dr. Lewis said, "when armies were disbanded and soldiers scattered from one end of Europe to the other, many of them carried infectious diseases into places where they were never known before. In that way there was scattered trachoma, one of the most devastating diseases of the eyes. At the close of the recent World War the same thing happened with even more widespread results. The Arab, the Chinese and other orientals had come into France with trachomatous eyes and the soldiers of the Allies had for months been in Syria and Palestine where hygiene had been largely unknown. After the armistice prisoners released from unsanitary surroundings carried infectious diseases into practically every nation of the world."

Dr. Lewis announced that through the splendid work of Dr. Hideyo Noguchi, a Japanese working under the direction of the Rockefeller Institute, great progress has been made toward localizing the causative element on which trachoma is dependent.

"After years of research," Dr. Lewis said, "Noguchi has succeeded in isolating an organism by which he produces trachoma in the eyes of the monkey. This is of signal importance, although we may have far to go before the curative sera are developed. But this is another thread running through the warp of the structure that is binding the nations closer together."

"Widespread and disastrous as is trachoma as a world problem, it is but one of many. The venereal diseases, one of the chief menaces to sight, require international cooperation of those affected through transit across the borders of adjoining states. An understanding is necessary for the continued treatment of travellers passing from one country to another."

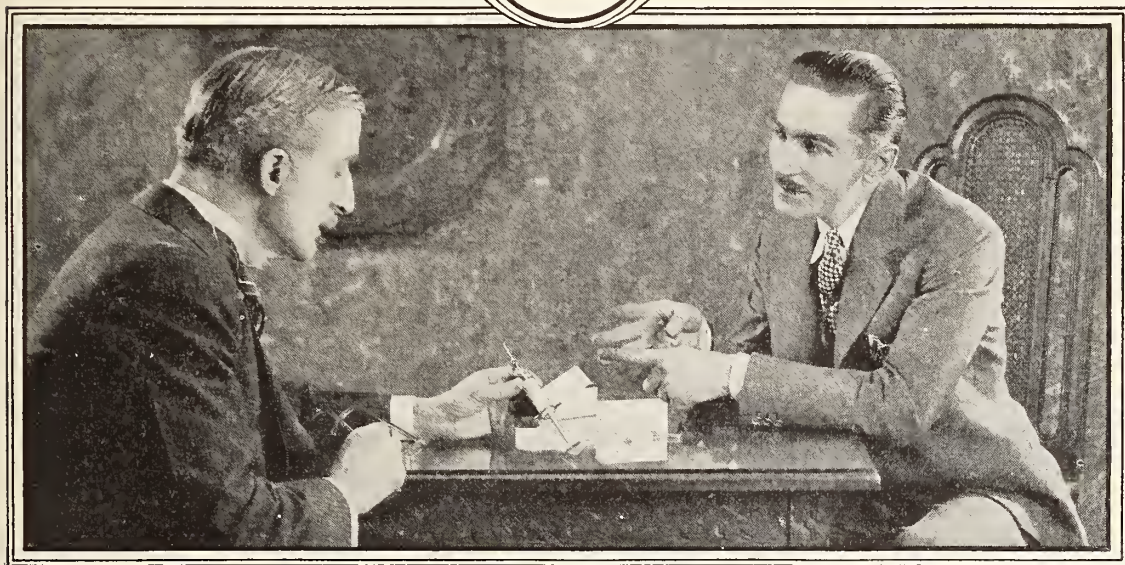
Dr. Lewis declared that trachoma is prevalent in many of our Indian reservations and among the white population in certain sections of the country and that congress should take cognizance of this serious situation in its appropriations to the Public Health Service.

Mr. Carris reported that great progress had been made in the prevention of ophthalmia neonatorum, commonly known as babies' sore eyes, which for centuries has been the most prolific source of blindness. Statistics from schools of the blind throughout the country, Mr. Carris said, indicate that in the last 20 years the percentage of blind children whose sight has been destroyed by ophthalmia neonatorum has been reduced from 26.6 to 12.9. He reported, however, a slight rise in the percentage during 1926 and said: "This is probably due to the fact that the schools for the blind are now receiving

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ing the crop of children who were neglected during or immediately after the World War."

"Nothing less than the complete eradication of blindness from babies' sore eyes," Mr. Carris said, "will terminate the committee's work in this field. In spite of all that has been done to educate the American public, the medical profession, mid-wives and nurses, there is still a considerable number of babies under one year of age in the United States who have been blinded for life through the neglect of a one-minute precautionary measure at birth."

There are still 19 states and two territories of the United States, Mr. Carris said, which have inadequate or no legislation or regulations for the use of a prophylactic in the eyes of the new born. Sixteen states, he said, have as yet made no provision for the distribution of a prophylactic to those who officiate at the birth of a child.

Outlining the future work of the committee for the Prevention of Blindness in addition to its campaign for the eradication of ophthalmia neonatorum, Mr. Carris said the organization has under way a two-fold project for conserving the sight of school children, a project to promote on a nation-wide scale examination of the eyes of preschool children for which a new technique has been demonstrated in 35 cities within the last year, a project to promote research into the causes of and methods for eradicating trachoma, and a number of activities in co-operation with national industrial and public health organizations looking toward the reduction of the eye hazards of industrial occupations and the hazards to sight resulting from the social diseases.

The following were elected members of the board of directors of the committee: Dr. Ellice M. Alger, New York City; Miss Mary Beard, New York City; Mr. Carl A. De Gersdorff, New York City; Mr. Homer Folks, New York City; Mr. William Fellowes Morgan, New York City; Mr. James P. Munroe, Boston, Mass.; Dr. William F. Snow, New York City; Mr. Russell Tyson, Chicago, Ill.; Mr. John F. Wilkie, New York City; and Dr. William H. Wilmer, Baltimore, Maryland.

THE ROLE OF VITAMINE E

The newest, the fifth in order, and the last of the known group of vitamins, was discovered in 1922 by Evans and Bishop in their laboratories at the University of California. Vitamine E, sometimes referred as to X, is known as the antisterility substance, because it appears to be necessary for successful reproduction—at least in the common run of animals. It is found in lettuce, meat, whole wheat, wheat germ, rolled oats, dry alfalfa and to some extent in milk. It is, however, so widely distributed that we may well question whether its lack, in so far as human beings is concerned, would ever occur under ordinary conditions of nutrition.

Within the past few months, McCollum and his colleagues have presented considerable evidence to show that the function of vitamine E is associated vitally in some manner with the assimilation of iron. The use of liver as an aid in combating anemia has received much attention lately. Liver fats apparently contain Vitamine E in considerable amounts, and liver also contains iron. It is claimed that the special value of liver in the diet of those suffering from anemia, as proposed by Minot, Means and

The Question: What is the first aim in milk modification?

The Answer

"The analysis of mixed dairy milk shows it to contain approximately:

4.0 per cent. fat
4.0 per cent. sugar
3.5 per cent. total protein

Human milk contains approximately

4.0 per cent. fat
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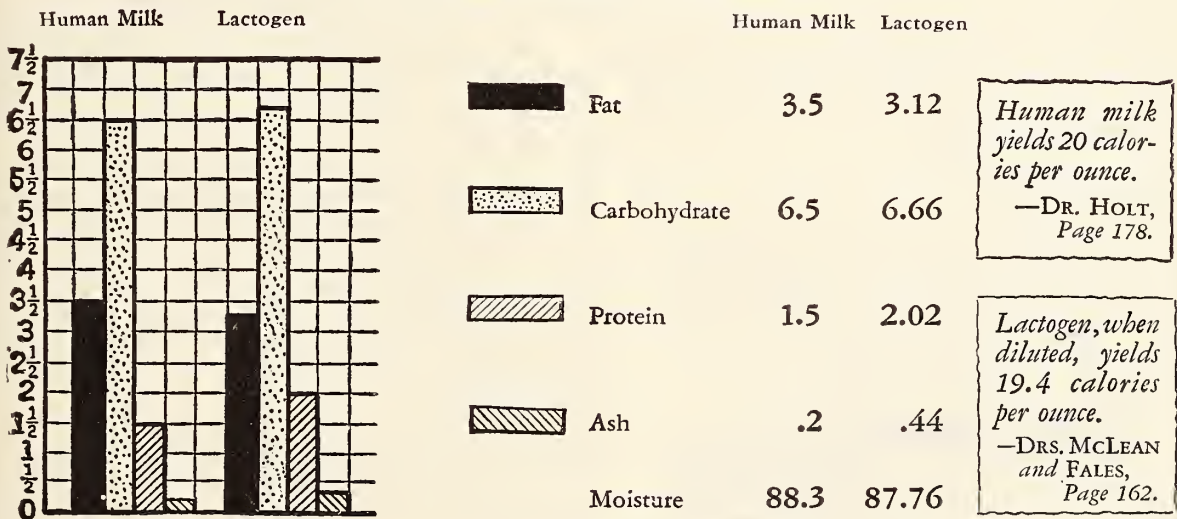
The first aim in the modification is to make the chief nutritional elements in the food prepared from cow's milk correspond grossly to the nutritional elements in the human milk. The protein must be reduced, the sugar increased, and the fat reduced even slightly below that usually found in mother's milk, as the child's digestive capacity for cow's milk fat is less by from 15 to 25 per cent. than it is for human milk."—Dr. Charles G. Kerley in "The Practice of Pediatrics," Page 68.

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Murphy, lies in the content of vitamine E and of iron.

And so possibly we are on the verge of other and very important discoveries as to the functions of the invisible lifeguards and as to the assistance which they may render us to keep us well, when we are sick, to help restore us to normalcy.

TUBERCULOSIS IN INFANTS.

Asserson studied the histories of 5,659 infants under two years of age in hospitals, clinics and baby health stations of New York City. The 336 infants in this group who had tuberculosis and whom it was possible to trace for a period of five years, were divided into two groups: (1) those from "contact" families, that is, families where there was a case of active tuberculosis; and (2) those from "non-contact" families. Of the tuberculous infants from contact families 47% are known to have died of tuberculosis, while of the tuberculous infants from non-contact families only 12% died of tuberculosis. In other words, the chances of a fatal outcome for infants which have tuberculosis in contact families are about four times greater than for those in non-contact families.

To advocate the removal of infants or young children from their home environment, says Asserson, is contrary to all human sentiment and desire. The appeal should rather be made for the removing of the member of the family whose presence is a serious menace to the life of the baby in its midst.—Tuberculosis in Infants, M. Alice Asserson, Amer. Rev. of Tuberc. Oct., 1927.

WHAT THE TABLE TEACHES

1. Premature births, broncho-pneumonia and diarrheal diseases are the chief causes of death in infancy. All expectant mothers should go to a physician for prenatal care. Little children should be under regular medical attention.

Do you know of the child welfare clinics of the Visiting Nurse Association, the out-patient clinic of the Children's Hospital and also the out-patient clinic for children at the Colorado General Hospital? These services are for those who cannot afford a private physician.

2. From one to nine years of age the chief causes of death are broncho-pneumonia and the so-called contagious diseases of childhood measles, whooping cough, scarlet fever and diphtheria.

Has your child received toxin-antitoxin? It is safe and nearly 100% efficient in preventing diphtheria. Measles, scarlet fever and whooping cough are not trifling ailments. Broncho pneumonia is frequently associated with these diseases and is then very apt to be fatal. Kidney ailments and other serious complications very frequently follow these diseases.

3. From 5-15 years of age tonsillitis and rheumatism frequently cause valvular diseases of the heart. Has your family physician examined you and your child recently?

4. From 15-40 years of age tuberculosis is common. Keep well nourished, avoid heavy colds, avoid chronic fatigue, have a health examination by your family physician at least once a year.

5. Cancer, arteriosclerosis (hardening of the arteries), and chronic diseases of the heart and kidneys would be much less frequent causes of death after the age of 45 if treated in their early stages.—Bulletin of the Denver Public Health Council.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

THE JUDGMENTS OF THE LORD

A pretty Leadville girl came down to Denver with a heavy heart. She had loved ardently, impulsively, without the restraint of common conventions. At length she began to realize that she was confronted with life-long disgrace for her transgression of social law and in that grievous penalty her unborn child was to share. Already she could feel the flame of slander as it burned the scarlet letter on her breast. Hoping to avert shame and ostracism more awful than capital punishment reserved for malicious murderers, she came to Denver, the big city, where there were all kinds of people. Doctors, skillful in the art of surgery, turned the melancholy girl away. She considered herself fortunate when she found an ignorant old woman who traded in such calamities of over-ardent girls.

This beldame was at once patronized and despised. She lived apart with her dogs. They licked her hands as she patted their heads. She drew a will providing for their care after her death. So she, too, loved, but finding her affection unrequited, she built up the defensive thought that she hated the world, withdrew from society and lived alone with her pets.

The girl submitted to the old woman's operation, became septic and died. The facts became known to the agents of the law and the lonesome hag was placed on trial for murder. The trial proceeded a few days. The court had adjourned at noon. On reconvening the defendant was not in her

place. The judge frowned. His court had been held in contempt. A messenger was sent to fetch the tardy and insolent woman. He returned with the report that she was dead. With thoughtful care she had turned her loved dogs out of doors, opened the gas vent and died. Upon hearing the report the judge quoted a familiar text, "The Judgments of the Lord Are Just and Righteous Altogether."

But what are the judgments of the Lord? What vain man dares to proclaim them with confidence? Had this woman been better informed and more skillful her patient would not have died. It is because of her ignorance rather than her depravity that the girl and she now lie in their frozen graves. Is it, then, against ignorance the Lord directs his vengeance? Shakespeare thought so when he said, "Ignorance is the curse of God; knowledge is the wing wherewith we fly to heaven." Never before nor since have fifteen words been so set together as to encompass so much truth. It was formerly thought that plagues were judgments of the Lord, "just and righteous altogether." Now we know them to be the penalties of ignorance. Amiable little children died of diphtheria because we lacked instruction about the cause and cure of that disease. Now no child dies of diphtheria except as the result of someone's unjustifiable ignorance.

The fate of the Leadville girl and the offense of her untrained attendant foreshadow problems which other countries are beginning to consider. They are problems

for scientists, not for puritans. Our own country, a republic which Macauley thought was without anchor to hold it or rudder to guide it has proven, in this as in many other respects, the most conservative of all. Russia, unafraid of experiment in government, has formed a commission for considering petitions of women who, for any cause, desire abortion. Eighty-three percentum of these petitions have received favorable action. In three years 55,320 authorized abortions have been done¹. In this great number there was no fatality. The operations are all free and are done in government hospitals. Within the same period the authorities of Russia learned of 66,675 abortions done by bunglers with 3,000 deaths.

Not satisfied with the results of its trial of free abortions, Russia is now more actively teaching birth control and is experimenting with new methods of prevention. In all European countries there is increasing activity in teaching birth control. The

¹Holden, Frederick C., *Gynecology in Foreign Governments*, J.A.M.A., 89:2014 (Dec. 10), 1927.

United States is alone in forbidding the use of the mail to writings favorable to contraceptive methods. We, in a land of the free, practice the principle that the government must decide what the people may be permitted to know.

This is not an argument favorable to the practices of any foreign government. It is a statement of facts which tend to show that elsewhere, if not here, men are beginning to break through the shell of tradition. It is certain, however, that both the little Leadville girl and her unlettered attendant were the victims of social narrowness. Motherhood should be glorified under all circumstances and to every child should be secured a culture commensurate to its native abilities. When a state of mind develops favorable to the first condition and a social organization capable of the second there will be no penitent girls seeking relief from shame by the clumsy art of men and women who live beyond the social pale. Until then bigotry will impute to divine will the sad fate of young women who prefer death to shame.

C. S. E.

WHY MEN FAIL

The above is the title of a series of articles published in one of New York's largest dailies. A number of other newspapers have reprinted them in their respective Sunday Magazine Sections. The editors are apparently anxious to impress their readers with the contents of these contributions and therefore serve them at a time when they can reflect most seriously upon them.

Fifteen physicians—all neuropsychiatrists—, the authors of the articles, assign an array of causes for men's failures; complexes, suppressed desires, morbid fears, vocational misfits, drinking, day-dreaming, fairy tales, physical and imaginary handicaps, and others too numerous to recount.

Whether one agrees or not with the various explanations as to the reason for men's failure is not as significant as the fact that such an important social agency, as the daily press turns to physicians for an explanation. It indicates a desire to go to

the rock bottom of facts. It reminds one of the day when the medical men gave up the iodine swab, the antipyretic, the cardiac stimulant as the combating weapons of the diphtheritic membrane, and turned to the cause. The minute the Kleb Loeffler's bacillus was discovered, the rest was easy. The same will undoubtedly be true when we find the cause of man's failure.

Success and failure are relative things. To Oscar Wilde there are two great tragedies in life—"not getting what you want—and getting it." According to Fortescue-Bricksdale,

"Not all who seem to fail have failed,

Indeed not all who fail have therefore worked in vain

For all our acts to many issues lead."

Success, as the ordinary mortal understands it, is the ability of each individual to combine his various components, his various selves, the different "Me's," as the great William James puts it, into a harmonious whole. No one is successful who fails to combine harmo-

niously his material, spiritual, intellectual, and social Me. Who can tell with certainty that when the day Henry Ford succeeds in producing a thousand "A" models in twenty-four hours, the subtle mind may not bring up a picture of Aaron Sapiro and thus cloud that success to a certain extent? Failure and misfortune are equally relative. When the city of Dayton, Ohio, was half submerged in water, one of the inhabitants is said to have exclaimed to his neighbor: "Talking about luck, my wife was going to do general housecleaning and wanted me to help her." No heir to human flesh is free from complexes, suppressed desires, and few of us indeed are not guilty of building air castles at one time or another. We were all impressed with fairy tales. At one period of our development Santa Claus was the all-absorbing idea. No one then doubted his reality, yet at a later stage of our existence some of us don't believe in Santa Claus.

It is the same with fairy tales, morbid fears, and all kinds of impressions whether beautiful, ugly, or fantastic. The normal man and woman learns to distinguish the illusory from the real, the desirable from the inevitable. He or she soon accepts it as an undisputed fact that heaven and earth are two distinct entities.

The real cause for men's failures can be summed up in a few words: Men fail because they are born to fail. Success, as it is defined, is the result of an even, normal, sound heredity. Men fail because they lack the potential that is needed to carry them through all the adversities of life. Failure as a whole, is not a socio-psychologic or economic attribute, but its due to an inherent biologic propensity. The fatuous belief that environment, education, and opportunity will alter the destiny of man is an anachronism of the loose thinkers of the French Revolution which is still mimicked by many of us.

Environment, no matter how ideal, will never make a Helen Keller out of a Deborah Kalikak. Environment and education have only a temporary influence; they carry one only for the moment and the marks are never more than skin deep. Often, only too often, they make the weak weaker, the misfit arrogant, and throw the potentially unstable com-

pletely out of gear. This applies to individuals as well as to collections of individuals—races.

As yet no one has even ventured the hypothesis that there is a physio-chemical change in the rays of the sun or in the hydrogen concentration of the sea that washes the shores of Greece. The environment is the same as of two thousand years ago, but Greece is not the Hellas of old. Not a single Herodotus, Homer, Plato, Socrates or Aristotle.

Schools, mental hygiene traveling clinics, professional evangelists are incapable of changing men's destinies. No man can ever surpass that potential with which he comes into this world. His fate is sealed. The biologic formula that a young pug develops into nothing but an old pug, a young greyhound into nothing but an old greyhound, may be paraphrased: a moron develops into nothing but a moron, a weakling into nothing but a weakling. It is true that by means of education and environment we may develop a simple moron into a college moron, but the moron is the dominant characteristic.

Natura non facit saltum—Nature makes no jumps; there are no short cuts from barbarism to civilization. The sooner we realize this truth, the less we meddle, and the less we try to improve on the works of the Almighty, the sooner we'll solve many a social problem, including the one "Why Men Fail."

Not so very long ago many physicians and social service workers, who were studying delinquencies, maladjustment, and allied problems, were blaming the moron, the high grade one as well as the low grade one, for many social sores. The Intelligence Quotient, or the I.Q. as it is known, became proverbial. Everything was explained in terms of I.Q. Then came Dr. Charles Bronstein and established colonies for morons, epileptics, and other mentally similar groups. When he isolated them from their "good and well-behaved brethren" it was discovered that morons were not such bad fellows. They are no trouble at all and do not indulge in mischief as long as no one tries to change them into something they cannot be by virtue of their very organization. The moronic

stock market went down to a very low mark. The Loeb-Leopold case and many other similar cases, even though they did not attract the same notoriety, inflicted the once highly respectable I.Q. a still stronger blow.

The fact that physicians are trying to solve the problem, why men fail, is very encouraging. For they are soon likely to stumble upon the all-important factor of heredity. Heredity and it alone has a deep, subtle, and permanent influence over the actions of men.

The moment we recognize this truth, we will recognize the limitations of people, their capabilities, and incapacities. We will then be able to place people in surroundings and vocations which will suit their particular make-ups, instead of placing upon them responsibilities which they are organically incapable of assuming. When they are so misplaced, they do the only thing they can do—they fail.

Men fail because they are born to fail.

L. V. T.

ROCKY MOUNTAIN SPOTTED FEVER AND CASE REPORT*

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COLORADO SPRINGS

Definition

Rocky Mountain spotted fever is an acute, endemic, non-contagious, febrile disease transmitted to man by the bite of the wood tick, *DERMACENTOR ANDERSONI STILES*, which has been infected by an organism called *DERMACENTROXENUS RICKETTSI*. "RICKETTSIA" is a generic term suggested by da Rocha-Lima in 1916 for certain small micro-organisms which occur in lice. It was given in memory of Howard Taylor Ricketts, who died in 1910 of typhus fever in Mexico City while investigating its etiology. Ricketts discovered the organism in 1906, but Wolbach identified it, proved its relation to the disease and described it in detail in 1919.

History of the Disease

Vague rumors and indefinite reports of a disease which may and may not have been Rocky Mountain spotted fever may be found in the writings of the early pioneers. Information of its occurrence among the Indians is unsatisfactory. The Mormons may have encountered this disease while en route to Utah in 1847. During this period the disease was called "bull fever," "typhomalarial fever of the Rocky Mountains," "black fever," "blue disease," and "spotted fever."

Waggoner, of the United States Army, while at Fort Lyons, Colo., met a disease "called mountain fever by the pioneer brethren," but these cases proved to be malaria. The fort was afterwards removed on

account of its unsanitary conditions. In 1902 the disease was investigated by Louis B. Wilson of the University of Minnesota for the Montana State Board of Health. He advanced the tick theory of transmission, described the parasites within the red blood cells, and suggested the burrowing squirrel (*citellus Columbianus*) as representing the original host of the disease. His work on the parasites was later refuted by other investigators. In 1906, Ricketts demonstrated that the disease could be transmitted to the guinea pig and monkey by the bite of the tick.

Etiology

The disease is transmitted to man by the bite of the infected wood tick. Man plays no part in the perpetuation of the virus, and in this way the disease differs from malaria, yellow fever and typhus. The virus is propagated in nature; first, by the infected ticks feeding on smaller wild animals and infecting their hosts, while these infected animals, transmit the virus to other feeding ticks; second, through the hereditary transmission of the virus from an infected female to her eggs and then through the different life stages of the tick. Eight or more species of the small wild animals found in the Rocky Mountain region are susceptible to the virus and they vary in importance in the transmission of the disease according to their abundance and selection by the ticks as hosts. These animals are the Columbian ground squirrel, the pine squirrel, the yellow-bellied and white-ribbed chipmunks, the

*Read before the El Paso County Medical Society, October 12, 1927.

wood chuck, the side striped ground squirrel, the badger, the white-tailed jack rabbit and the cotton tail rabbit.

Causative Agent

The micro-organism. This is a living organism capable of multiplication both within certain ticks and certain warm blooded animals. In 1902 Wilson and Chowling described a "piroplasm" in the red blood cells of these cases. Subsequent work failed to confirm their findings. Ricketts reported finding diplococcoid and lanceolate, chromatin-staining bodies in fresh blood-smears and many small bacilli in the infected tick eggs. Connor of Harvard also described this method, but had greater success by intraperitoneal inoculation of a normal guinea pig. In 1926 workers of the U. S. P. H. S. demonstrated that the virus was inseparable from the red and white blood cells by laboratory methods. They also showed that the excrement of infected ticks was also infectious. The fact that the virus has been found in the blood and serum does not completely dispense with the speculation as to the real form of the organism in the situation. The unusual virulence of the blood (0.001cc often being infectious) seems somewhat incompatible with the exceedingly small number of organisms found.

Life History of the Dermacentor Andersoni

The life cycle is about two years. The adult is found almost entirely on the bodies of large, warm blooded animals, while the larval and nymph forms are found on the smaller animals. Ticks belong to the family of "Ixodidae" and are not true insecta but ascerines, and are closely allied to spiders and itch mites. They have eight legs in the adult stage and six legs in the larval stage. The female is about the same size as the male, when unengorged about five by two and a half millimeters, but differently marked on the back.

During the winter months the ticks lie dormant under logs and stones, but upon the appearance of the first warm days in the spring they crawl upon the grass, weeds and bushes from which they can easily attach themselves to the passing larger ani-

mals. They feed by sucking blood from the host and during this stage copulation and fertilization take place. The females continue to feed for three or four more days after fertilization, until they become tremendously swollen and then fall to the ground where they rest for two weeks. They lay from one hundred to several thousand eggs and then shrivel and die. The larvae hatch from the eggs in thirty or forty days if the weather is warm. The larvae stick in clumps to the ground foliage and await the passing smaller animals to which they attach themselves. They become engorged in about five or six days and then drop to the ground where they lie dormant for three or four weeks before molting. The skin is then cast and the asexual nymphs are born. This form again attaches itself to a host, becomes engorged and falls to the ground where it lies dormant for three or four weeks while the metamorphosis into the adult form takes place.

Weather and food conditions may greatly influence the life cycle of the tick and a winter may intervene between any of the three stages. The average time consumed in completing this life cycle is two years.

Prevalence

Rocky Mountain spotted fever is intimately associated with the settlement and agricultural development of any region that harbors infected ticks. Cases have been reported since 1870, according to the statistics gathered by R. R. Parker of the U. S. P. H. S. and from the following states; viz., Idaho, Montana, Minnesota, Nevada, Oregon, Wyoming, Washington, California, Colorado, Utah and South Dakota. The greatest number of cases reported from the entire region in one year has never amounted to as much as one thousand. Idaho reported the greatest number of cases in recent years when she reported 380 in 1908 and 360 in 1915. Reclamation and irrigation for agricultural purposes has greatly reduced the amount of land that was previously tick infested. The most constant locality in which the fever prevails in Montana is in the Bitter Root Valley in an area four to ten miles wide and fifty miles long. In Idaho it has been reported

along the entire north bank watershed of the Snake River. The disease has frequently been found to be limited to watersheds which face or flow towards the south. In Colorado five cases have been reported previously to 1908. Four of these were reported from Carbondale and one near Rifle. Becker of the Colorado Medical School in reviewing the statistics from 1918 to 1926 found a total of 23 cases and 11 deaths. In searching the U. S. P. H. S. reports from 1913 to 1926, I found 20 cases not counted by Becker. His cases were reported from the following counties: Larimer, Boulder, Moffat, Rio Blanco, Garfield, Saguache, Fremont, Chaffee, Delta, and Montrose. My case received its tick bite in Teller county.

Variation in Virulence of the Strains

Two types of Rocky Mountain spotted fever are recognized depending upon the severity of the disease and the mortality rate. The Bitter Root strain is exceedingly virulent and it is rare for an adult to recover. Statistics indicate a 90 per cent mortality. The Idaho strain is decidedly less virulent and the mortality seldom exceeds 5 per cent. Botanical and climatic conditions probably explain this great difference in mortality. In the Bitter Root Valley of southwestern Montana the winters are severely cold and long. The summers are mild and the tick infested areas are generally shaded and moist. Here the larvae and nymphs feed on the Columbian ground squirrel and the adult ticks attach themselves to the domestic animals. Along the Snake River in Idaho the summers are very hot and dry. On these dry sage brush plains the jack rabbit is the principle host for the infected ticks. Later investigations have shown that ticks which have been well fed will produce the disease much more readily in guinea pigs than the unfed ticks will.

Persons Infected

The disease usually infects persons whose occupation takes them into the sage brush and mountainous regions, such as stockmen, miners, shepherds, prospectors, lumbermen, hunters and summer tourists. It has been seen in children as young as five and adults

at seventy. There is no sexual variation. The disease is easily produced artificially in monkeys and guinea pigs.

Seasonal Variation

The so-called tick season starts with the first warm days of spring and continues throughout the summer as late as August or September. When well warmed ticks may even attach themselves in winter.

Symptomatology

The incubation period varies from five to ten days with an average of seven days. During this time the patient complains of malaise, chilly sensations and has a slight evening temperature. Then an abrupt chill occurs and it is followed by a temperature of 103-104. This continues for fourteen to sixteen days and there is usually a morning remission of about two degrees. With the appearance of the temperature the patient complains of severe headache, backache and pains in the muscles and bones. The conjunctivae are injected and may be icteric. Photophobia is common. The external ears are tender. The tongue is coated and the teeth are covered with sordes. The throat may be injected. Epistaxis occurs in almost every case. No cervicle glands are palpable and although there may be pain on moving the neck, there is no rigidity. Alcoholics show a tendency to develop pneumonia. There is usually a disproportion between the pulse and the temperature, but the slowness of the pulse is never so marked as that seen in typhoid fever. Older writers speak of the great heart strain, but more recent records do not mention this. Tympanitis and tenderness in the abdomen are absent, but the liver and spleen are usually palpable. Constipation is the rule, although diarrhea may occur. Jaundice is frequently met with in the more severe cases and is first noticed in the conjunctivae. The mind is usually clear even in the more severe cases.

On the third, fourth and fifth days the characteristic eruption appears. It develops first on the ankles, wrists and forehead and then spreads to the rest of the body. The lesions are scattered at first, but they become more numerous on each succeeding day and are seen in the hairy areas as well as the palms and the soles of the feet. Later

they may be found on the buccal membrane, the posterior pharyngeal wall, the conjunctiva and one writer reports small hemorrhagic areas in the fatty and muscular tissue found at post mortem.

The lesions are at first macular and about one to two millimeters in diameter. They are salmon colored and have a waxy glance. Later the spots become larger and somewhat irregular. Their color increases and they become slightly elevated. They disappear on pressure during the first week, but later a constant brownish area remains after pressure. During the second week a fine scale covers the center of the macule and during convalescence this results in a desquamation that involves the entire body. Petechiae are seen and they may develop into an ecchymosis that extends as large as a hand and thus may resemble purpura hemorrhagica. A. J. Campbell in Colorado Medicine describes successive crops of macules. As the fever subsides the lesions fade, but they will return readily if the patient has a temperature, perspires freely or is exposed to cold weather. The small, bluish-brown areas may not completely disappear for several weeks.

The urine is reduced in amount, highly colored and may contain albumin. Granular, blood and hyaline casts are frequently present. The red blood cells are rapidly destroyed and a drop of 40 to 50 per cent in the hemoglobin estimation is not uncommon. The white blood count is usually normal during the first week with the P. M. N.'s ranging from 72-76 per cent. Later the white cells increase slowly. The widal test and blood cultures are negative. Intraperitoneal injection of a normal guinea pig with some of the patient's blood will frequently cause sloughing of the epidermis on the pig's ears and scrotum.

Diagnosis

The diagnosis of Rocky Mountain spotted fever in the regions where it is endemic is not difficult. Even the laity recognize it. It appears after the first warm days of spring in regions known to be infested with the infected wood ticks. Also the history of the tick bite; the malaise, muscle and bone pains; the headache and chill; followed by

a temperature of 102-104; and the characteristic rash appearing first about the wrist and ankles are the outstanding features of the disease.

Differential Diagnosis

It is only necessary to mention the diseases from which Rocky Mountain spotted fever must be differentiated. Typhus fever resembles it more closely than any other disease, but for geographic reasons this differentiation is seldom necessary. Guinea pig inoculation brings out the different characteristic reactions of the two diseases. Typhoid fever, measles, dengue, purpura rheumatica, purpura hemorrhagica, scarlet fever, chicken pox, small pox and epidemic cerebro-spinal meningitis must also be considered.

Treatment

Prophylaxis.

Tick eradication. This work has been carried on principally by the Montana and Idaho state boards of health; the U. S. P. H. S. and the Bureau of Entomology. The largest amount of work has been done in the Bitter Root valley in Montana and along the Snake River in Idaho. Different methods must be used in the various regions, but the principles of tick eradication have definitely been established.

The methods employed by the U. S. P. H. S. are these:

1. Education of the people concerned as to the mode of transmission of the disease, the consequent danger from tick bites, and the precautions which should be taken for their prevention.
2. Efforts to secure from state authorities the enactment of proper laws and regulations restricting the grazing of horses and cattle in infested districts.
3. Tick Destruction. a. Dipping of domestic animals for the destruction of the adult ticks. b. The killing of small wild animals which serve as hosts for the immature ticks. This is done by trapping, poisoning, shooting and carbon bisulphide pumps.
4. Sheep grazing. While grazing they pick up more ticks than the larger domestic animals. They graze closer and thus destroy the food and shelter of the ticks and the smaller wild animals. They also destroy

many ticks by the action of the lanolin in their wool.

Prevention of Infection

This is best done by staying away from the infested districts. It is necessary to wear clothing with a minimum of openings and the upper garment tucked inside and not outside of the lower garment. High boots are necessary. But a feeling of false security in a heavily tick infested territory is dangerous and the only safe procedure is to remove the clothes every two or three hours and carefully search for ticks. Infection may sometimes be prevented by promptly cauterizing a recent tick bite with a toothpick dipped in 95 per cent carbolic acid.

Vaccination

In the reports of the U. S. P. H. S. for 1926 the work of Spencer and Parker at the field station at Hamilton, Mont., is reported. They have developed a prophylactic vaccine against Rocky Mountain spotted fever and have tested its value by administration in selected areas and checking results. In 1925 two men who had received but one-fourth of the dosage considered likely to give full protection later contracted mild infections and recovered. These recoveries were the only two among seven Bitter Root valley cases during the season of 1925, and also the first two records of recovery among laboratory and control workers.

The production of the vaccine which is made from infected adult ticks, requires nearly a full year. It involves the engorging of hundreds of female ticks, the feeding of hundreds of thousands of the resultant larvae on infected hosts, and the rearing of these through the nymphal stage to adults, it is in the adult tick that the highly virulent virus essential for a potent vaccine most consistently occurs.

During 1926 a total of 620 persons were vaccinated in the Bitter Root valley and in the territory tributary to the Shoshone. No cases of spotted fever occurred among the vaccinated persons. During the same year there were 24 cases outside of the vaccinated group in the Shoshone district and four in the Bitter Root district. All of these latter cases died. It has been impossible to meet

the demand for vaccine and persistent requests from Wyoming, due to the increased incidence and mortality rate, have had to be refused.

General Treatment

This consists entirely in supportive and symptomatic relief. The early settlers used wild sage tea. Later physicians used quinine and various arsenical preparations. At the present time all these measures are discarded.

Pathology

The specific lesions found in human beings and experimental animals are characteristic and can only be confused with typhus fever. The lesions in the skin consist of an endothelial cell proliferation, thrombosis, occlusion and perivascular accumulation of large mononuclear cells. These changes in the blood vessel give rise to edema, hemorrhagic rash, focal necrosis and necrotic areas. In the lymph glands the sinuses are filled with large mononuclear phagocytic cells. There is intense enlargement and engorgement of the spleen to two and three times its normal size and the sinuses and reticular spaces are filled with large phagocytic mononuclear cells.

Case Report

J. T., aged 12 years, is the second child of healthy parents. He was born at full term and without obstetrical injuries. He had measles at 19 months and suffered no sequelae. He had pertussis at five years. He had varicella one year ago. He has been vaccinated.

On the twenty-fifth of July he went to a ranch on the highway between Cripple Creek and Florissant. There were a large number of cattle and horses on this ranch and he killed a few rabbits. He came home on the third of September because he had been injured on the forearm by a pitchfork. That night his mother removed a woodtick from the back of his neck. His arm healed nicely but nine days later (September 12th) he developed general malaise, a severe headache and vomited. The mother thinks she noticed a few spots at this time. I saw him on the next day. His temperature was 101.5 at 10:00 a. m. His headache was severe and he felt quite weak. I saw a few spots on his abdomen and thought they might be rose spots. I did not examine his wrists or ankles on that morning. I took some blood for a Widel test. On the next day his diarrhea had stopped but his headache was not relieved. The Widel was negative. I noticed the macules on his wrists which simulated Rocky Mountain spotted fever.

I sent the boy to the hospital and that afternoon he developed a temperature of 104.5. The macules rapidly increased in number and on the next morning they covered his entire body. A leucocyte count at this time showed 8000 with 72 per cent PMN's. The urinalysis was negative. A blood culture and Widel test were also made and

these proved to be negative. A diagnosis of Rocky Mountain spotted fever was then decided upon. His temperature ranged from 101-104.5. His pulse was of good volume and was usually 100-120. He complained of warmth, headache, and loss of appetite. On the tenth day he developed a moderate conjunctivitis and was seen by an oculist. He had three periods of slight diarrhea and these attacks were easily controlled with calcium carbonate. On the tenth day the rash began to fade and assumed a reddish brown color. His external ears became quite tender, but there was no desquamation on the scrotum. On the fourteenth day the temperature stayed at normal and the patient was discharged.

He lost considerable weight and felt quite weak. A hemoglobin estimation done yesterday showed 80 per cent. The boy is gaining rapidly in weight and strength but still has most of the small tan pigmented spots.

The therapy consisted only of sponge baths, calcium carbonate and soft food.

A guinea pig was injected intraperitoneally with 10 c.c. of the patient's blood and two weeks later it developed sloughing areas on the external ears and the scrotum.

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THE IMPORTANCE OF THE EARLY DIFFERENTIAL DIAGNOSIS OF VENEREAL ULCER*

An Analysis of 60 Cases

GEORGE M. MYERS, M.D.

PUEBLO

The venereal ulcer presents to us a condition in which an early correct diagnosis is of vital importance. More costly errors are made in handling these than in almost any other class of cases.

Syphilis and chancreoid infection are the causes of most cases of venereal ulcer that we see in this locality. They may occur singly or in combination, the so-called mixed sore. The latter condition is where special precautions should be taken, as the chancreoid infection masks the luetic one so that the lesion frequently appears to be one of simple chancreoid. Granuloma inguinale is a lesion seldom seen in Colorado. It is a rapidly spreading ulceration of the genitals and inguinal regions that can be contracted by venereal exposure. It is a disease seen most commonly in tropical countries among the dark races.

Syphilis, one of the most dreaded scourges of mankind, occurs so commonly and produces such a high percentage of venereal

ulcers that the only safe procedure is to consider every case of venereal ulcer one of syphilis until that disease is positively ruled out. Syphilologists agree that the most favorable time to treat syphilis is in the early primary stage before the infection has become widely disseminated, even before the Wassermann or Kahn tests have become positive. It is in the cases so treated that the highest percentage of cures are obtained. We, as physicians, certainly owe it to our patients to give them this best chance of cure. We frequently, when called upon to treat secondary or late lues, discover gross neglect in the care of these cases. In taking a careful history, the patient often states that he had a sore on the genitals some time previously, went immediately to a doctor, and was informed that the condition did not amount to much. He was given some ointment or powder to use and told that he would soon be well. The sore usually disappeared after a varying time and the patient considered himself cured, only to find out at some later period that he had syphilis and that his best chance for a cure was gone.

*Read before the fifty-seventh annual meeting of the Colorado State Medical Society, Glenwood Springs, Sept. 6, 7, 8, 1927.

It may be necessary sometimes to differentiate other lesions not venereal from those of venereal nature. Herpes progeneralis is not uncommon and sometimes when infected or treated with irritating drugs may resemble a venereal ulcer. Injuries to the prepuce, especially during intercourse, are also encountered. Balanitis, when especially severe, may cause ulceration. Cancer of the penis, although rather rare, does occur and must be differentiated. The only safe procedure in such cases is to make a dark examination and blood tests where there is the slightest suspicion, either from the history or the appearance of the lesion, of its being venereal in origin.

Extragenital chancres are not uncommon. In the past two years I have seen six such lesions, two of the lower lip; two on the fingers, both occurring in physicians; one of the tongue; and one on the lower abdominal wall. These extragenital lesions are often atypical in appearance, which fact frequently accounts for a mistaken diagnosis. A chronic sore on any part of the body that refuses to heal readily should be regarded with suspicion. Repeated dark field examinations and blood tests should be done and the case observed for any other clinical evidence of lues.

In the early diagnosis of venereal ulcers the dark field examination plays a most important part. Every case should be subjected to this test at the earliest possible moment. The Wassermann test has been so emphasized and advertised that the dark field test is often neglected, if not forgotten. In this test we have a method of positive diagnosis long before the blood tests are of the slightest value. Physicians treating these cases should either acquaint themselves with this test and be able to perform it, or send the patient to a laboratory where such a service is available. No one who has not had sufficient training in making dark field examinations should attempt a diagnosis by this means. The *treponema pallida* must be clearly observed and differentiated from other somewhat similar organisms. I will briefly mention the method we use in making this test. A good specimen for examina-

tion is essential. This must be as free as possible from blood and pus cells. The lesion is carefully washed with sterile water or salt solution and then gently rubbed with dry gauze over the index finger until slight bleeding is produced. Under no condition should an antiseptic solution be used as this might easily destroy the *treponema pallidum*. The blood is sponged off until the bleeding stops and then after waiting for about ten minutes a clear serum is obtained. A drop of this serum is secured with the platinum loop and placed on a glass slide that is especially made for this purpose. The drop is placed in the center of a vaseline ring and gently covered with a cover glass. Three such specimens are made, and each one carefully examined under the dark field. For this purpose we use a dark field stage attached to our regular microscope and a special dark field mazda lamp. After a little experience one learns just how to set up these instruments without much difficulty. Each slide is examined at least ten minutes before discarding.

Where the dark field is not available smears can be made from the serum and sent to a laboratory for examination. Various methods of staining can be used that may demonstrate the *treponema pallidum*. Giemsa stain, Wright's stain with one per cent sodium carbonate as diluent, and India ink are three such methods. None of these methods, however, have been so satisfactory to us as the dark field examination.

An analysis of a series of sixty consecutive cases examined at the Pueblo Clinic brings out some interesting facts. There were fifty-eight males and two females. The high percentage of males shows that men are more apt to consult a physician for genital ulcers than are women. However, undoubtedly a large percentage of venereal ulcers in women occur within the vagina where they are not discovered.

The ages of the patients varied from seventeen to forty-two years. Fourteen cases occurred from the ages of seventeen to twenty years, inclusive, twenty-five from twenty-one to twenty-five years, twelve from twenty-six to thirty years, two from thirty-one to thirty-five years, and one from thirty-

six to forty-five years, the greatest number, thirty-nine, occurring from seventeen to twenty-five years, showing, as we would expect, these lesions to be most common in youth.

An effort should always be made in taking a history of the case to find out the period existing since the last exposure, as this fact may be of benefit in the diagnosis. Chancroidal infection has a much shorter incubation period than syphilis (from one to fifteen days), while the latter may be from one week to six. Twenty-one cases had a history of exposure of one week or less; thirty, from one to six weeks; twelve, or 40 per cent of these, being one month. The longer the period since exposure, the more carefully syphilis must be considered. Practically all of our cases with a history of exposure two weeks or longer proved to have syphilis. The duration of the lesion before coming for examination is also of assistance. Forty-six had gone from one day to one week; eleven from one to two weeks; and three from two weeks to two months, the majority fortunately, coming for examination early in the course of the disease.

The appearance of the lesion is an important diagnostic point, but should never be depended upon alone to establish a diagnosis. There are lesions that are typically luetic with a single markedly indurated ulcer which gives us a picture of the classic Hunterian chancre. Here there is not much chance for error, although I have seen a simple chancroid, after having various irritating drugs used upon it, closely simulate this picture. However, it is the simple non-indurated, or only slightly indurated ulcer whose appearance is so often misleading. These may answer every description of chancroidal infection and still syphilis be present. Multiple lesions do not rule out syphilis as mixed infections are common and both chancroid and lues may coexist. In this series there were sixteen cases of typical Hunterian chancre (single lesions), five cases of typical chancre with other superficial lesions, eighteen of simple non-indurated single lesions, fourteen of simple non-indurated multiple lesions, and five of

doubtful single lesions. All cases were subjected to the same routine examination regardless of the appearance of the lesion and this, I wish to emphasize, is the only safe procedure.

Fifty-one of the sixty cases had had no previous medication prior to examination. Of the nine having had previous treatment four had tincture of iodine used, four mercurochrome, one carbolated vaseline, and one metaphen. Previous treatment should not keep one from making a dark field examination, although the possibility of finding the spirocheta may be less. Of the nine treated cases we found positive dark fields in five. In some cases where the primary lesion has been made unfavorable for dark field examination by treatment, especially by the use of caustics, needle puncture of any neighboring enlarged lymph glands with slight maceration, injection and withdrawal of a little saline solution may reveal the spirocheta in the dark field examination of this fluid.

In our series 32, or 53 per cent, of the cases showed positive dark fields. Of these the majority were positive on the first examination. In some as many as three successive dark field examinations were made. On all these patients Wassermann and Kahn tests were also made. In none where the lesion had existed one week or less prior to examination, were the serological tests found positive. All cases showing negative dark fields were followed by weekly Wassermann and Kahn tests for a period of eight weeks, before the patient was discharged as being free of syphilis. Some patients will of course not stay under observation for this length of time, but they should be told the importance of so doing and every effort made to follow them. It is important to take frequent blood tests in order that the first showing of a positive reaction may be detected as early as possible. The Wassermann test is, however, not infallible. Cases of syphilis do occur that give a negative test, although I believe them to be comparatively rare. Just recently a patient came to me for treatment with multiple lesions on the penis, numerous copper-colored macules scattered

over the body, and mucous patches in the mouth, who gave repeated negative Wassermann tests on his blood. The clinical evidence of syphilis was so strong in this case that I started him on anti-luetic treatment and his lesions soon vanished. Numerous clinical examinations should of course be made in all cases and if other symptoms of lues appear, even with negative laboratory findings, the case should be diagnosed syphilis, and treatment instituted.

Of the twenty-eight cases that showed a negative dark field, thirteen later showed a positive blood, practically 50 per cent, demonstrating the value of the follow-up blood tests. Six of these became positive in from one to two weeks following the original examination, four in from two to three weeks, two from three to four weeks, and one in eight weeks. Nine cases were followed up for the full two months and found negative with no clinical evidence of syphilis developing. Six cases did not return for the follow-up tests so their status cannot be determined. Thus, on the sixty cases of venereal ulcer coming for examination 45 or 75 per cent proved to have syphilis; 9, or 15 per cent to be non-syphilitic; and 6, or 10 per cent, undetermined.

Conclusions

1. A routine examination consisting of clinical examination, dark fields and blood tests, is essential in every case of venereal ulcer.
2. The history and clinical appearance of the ulcer cannot be positively depended upon for diagnosis.
3. Syphilis is to be found in a large per cent of venereal ulcers, being found in 75 per cent of this series.
4. Every case of venereal ulcer should be considered as one of syphilis until proved otherwise.

DISCUSSION

H. H. Wear, Denver: I wish to compliment Dr. Myers on his paper. Everything he has said has been very concise and well put, and certainly bears all the evidences of truth. As he says, a sore on any part of the body that does not heal readily, and especially on the penis, is suspicious of syphilis and should be considered so until proven negative.

Philip Hillkowitz, Denver: The topic treated by Dr. Myers is extremely timely, for the reason that a great many of the profession are, unfor-

tunately, not yet familiar with the necessity of making the dark-field examination test in the primary stage. As Dr. Myers stated, the Wassermann has been very much emphasized, but to the neglect of the search for the spirochete. This is true of medicine in general. There are so many new things coming up all the time that it is difficult for the practitioner to keep abreast of the times, and it takes sometimes five or ten years for new information to filter through, and so a paper on the subject is extremely useful. It is all important to the patient to know definitely whether he has syphilis or not. At times it has been advocated to start treatment on a suspicious sore without determining definitely whether it is syphilis or not. I do not think that that is really doing justice to the patient. We see many of them coming in time after time nervous wrecks due to the fact that they have had treatment, before a definite diagnosis had been made, even in spite of a negative Wassermann, they carried on through their lives the consciousness of the doubt, this could be prevented to a great extent if it could be definitely determined before starting treatment. Dr. Myers is therefore perfectly right in insisting on a definite diagnosis. Now, I may state that the pathologist is not always 100 per cent exact in making these tests. While in a great majority of cases we are able to demonstrate the treponema, yet we do make errors, and are sometimes chagrined after giving a negative report to find subsequently chemical or serological evidence of lues. It is well to remember that a negative finding does not prove anything, and we always make it a rule to examine at least twice before pronouncing a case negative, at twenty-four-hour intervals.

W. M. Spitzer, Denver: There is an infection that is frequently confused with the primary lesion of syphilis, when it occurs on the penis. This infection, frequently known as the fourth venereal disease, is what is known as Vincent's Angina when it occurs in the throat. It is due to a symbiosis of two organisms, one a spirochaete and the other a rod. At times these rods are rare, the spirochaete predominating to such an extent that, microscopically, the inexperienced, and sometimes the more experienced bacteriologist will diagnose a primary lesion of syphilis when such is not the case. To the older clinician the diagnosis of the sore is not alone a laboratory affair, and so the bacteriologist and serologist is given more opportunity to make a correct diagnosis.

However, as one cannot clinically differentiate between a chancroid, a true chancre, and this fourth venereal disease, repeated attempts must be made to find the treponema pallida; falling in this, would the suspicion still present that the ulcer may be a true chancre, repeated attempts must be made to obtain a positive Wassermann. Whereas, the Wassermann may not be positive at first, two weeks later a positive Wassermann may appear. Even if the examination for spirochaete is negative, and the Wassermann is persistently negative, if the clinician is still suspicious of syphilis, the patient should be closely watched for a considerable period of time for the appearance of a rash, mucous patches in the throat or mouth, or other lesions of syphilis; and when these appear, treatment must be begun.

Lastly, if the clinician be fairly sure of his diagnosis of the primary lesion, in the absence of a positive Wassermann or a positive finding for treponema, and if he have confidence in his judgment, treatment should, in such case, be commenced, as it would be better to treat such a case than to permit it to go untreated until harm is done.

H. W. Stuver, Denver: In discussing Dr. Myers' paper there is one point which I think has been overlooked, and that is a more definite and complete understanding between the patient and the doctor as to what is meant by blood test. A great many of these patients will come in and give a history of having had a primary lesion, and you ask them what was done and they will say "the doctor took a blood test." On further questioning you find that instead of making a blood test (Wassermann), a dark-field examination was made, and that the dark-field examination was made after marked and energetic antiseptic treatment had been used. I think there ought to be a definite understanding between the patient and the doctor as to the difference between a blood test, a dark-field examination, and what not, so that the doctor does not have a misconception of just what has been done.

I. Bronfin, Denver: I was very much impressed with Dr. Myers' advice to suspect every persistent sore as syphilitic until proved to the contrary. I recall an incident of my early interne days, when I had occasion to observe a case for about six months; a woman of about 36 years of age, who had suffered from an ulcer of the leg, diagnosed as a varicose ulcer. As the lesion failed to heal under the usual methods of treatment, she was admitted to the hospital, where the fibrosed edges of the ulcer were incised in the hope of improving the local circulation. The results were discouraging. She continued attending the Out-patient Department. One afternoon, one of my assistants, apparently without any reason, applied a bichloride of mercury dressing. Three days later we were surprised to note a marked improvement in the local appearance of the lesion. This gave us a clue as to the possible syphilitic nature of the ulcer and we instituted anti-syphilitic treatment with quick and gratifying results. I do not recall whether a Wassermann test was taken in this case, but the clinical course of this patient impressed me to always suspect an ulcer in any part of the body that fails to heal under usual treatment as syphilitic and to order a Wassermann in order to verify or exclude such suspicion.

J. B. Davis, Denver: Dr. Myers has presented a most timely and practical subject. The clinical diagnosis of syphilis is not reliable. There is no typical primary lesion. It would take too keen a diagnostician to differentiate primary, secondary and tertiary lesions, from many other simulating conditions.

I do not wish to condemn Wassermann—but it is far from being dependable. The demonstration of the spirochaeta pallida is the one and only one positive proof of diagnosis of syphilis.

For these reasons, it is condemnable to start treatment without this proof, if the patient presents himself with a venereal sore.

However, once treatment is instituted, it is far better to continue routinely than to omit treatment in a symptomless or latent case.

The opportunity then for positive diagnosis is lost forever.

Dr. Myers (closing): I thank the members of the Society for their generous discussion. Both Dr. Hillkowitz and Dr. Davis emphasized the fact of so many cases being started on treatment before there was a definite diagnosis made. This is one of the facts I tried to bring out in the paper. The first thing, of course, is a proper and correct diagnosis. Dr. Spitzer also emphasized the fact of a Wassermann test being negative in some cases where syphilis is present. I stated an example in my paper for that specific reason. Here was a case that was clinically and typically syphilis, and serologically negative. These cases do occur, and when they do should be treated actively. In other words, the laboratory has not completely wiped out our clinical observations. Dr. Stuver mentioned the fact of having a definite understanding between patient and doctor as to what was done. I think this is important. In all cases I endeavor to explain to the patient what they may have, and just what should be done. In other words, outline to them that they must be followed up in order to obtain positive information. You must have the confidence of the patient. If you do not have his confidence, he will go from doctor to doctor, and you will never get a diagnosis.

THE SURGICAL TREATMENT OF SPINAL TUBERCULOSIS*

(Illustrated with Slides)

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The one most essential factor in the treatment of tuberculosis is some form of rest, particularly to that part of the body affected. This rule applies especially to bone and joint tuberculosis and goes hand in hand with measures to prevent deformity and loss of function. The prolonged neglect of joint tuberculosis is often productive of grave results, with deformity, shortening, abscess formation, and, in spinal cases, spastic paraplegia, besides the attendant pain and disability lasting for months or years.

Spinal tuberculosis can be so crippling

with its increasing kyphosis or hunchback and so often makes its victim bedridden because of paralysis of limbs and bladder and rectum, that prompt treatment and permanent relief are all important.

Reviewing briefly the pathogenesis of spinal tuberculosis, we know that the affection is a progressive destructive inflammatory process beginning usually in the anterior part of the cancellous portion of the body of the vertebra, later involving the intervertebral cartilages, and often extending to adjoining vertebrae. Because the body of the vertebra (especially in the dorsal region) is the weight bearing portion of the

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bone, when a collapse of this part occurs from tuberculosis, it produces a backward angulation of the spinal column. The superincumbent weight, unless support has been given to the spinal column, continues to press on the diseased bone, increasing the angulation often to an extreme kyphosis or humpback. An accompanying abscess is always present about the vertebral body. When repair does take place, after months or after years of the disease, it is not only by callus formation, but mostly by fusion of adjoining vertebrae, and so may allow even a continued increase of deformity, yielding more and more to over-strain. Hence, there



FIG. 1, CASE 1. Pre-operative.

is indicated the necessity of prompt and sufficient mechanical or operative support.

Until fifteen years ago, treatment of spinal tuberculosis consisted of two general types of mechanical devices; the brace or plaster cast to act as support for ambulatory cases, and the iron frame or plaster shell to secure proper position when recumbency was desired. The latter measures to secure recumbency have been recognized as preferable for children, while in older individuals, the former therapy has been more popular because adults cannot submit to too prolonged rest in bed.

In 1912, the first reasonable surgical pro-

cedures were brought out when Albee advised the tibial transplant to the posterior processes of the vertebrae to bridge across the diseased vertebrae, and when Hibbs described his fusion operation to make solid a number of vertebrae above and below those affected. Both of these operations were advocated on the plea that if the vertebral column could be held rigidly erect and firm during the acute or subacute stage of the disease, that the tendency to kyphosis resulting from the superincumbent weight pressing down upon the diseased vertebral bodies would be overcome and that ultimate healing would occur with little or no deformity because of the surgically braced vertebrae. At first these operations were considered all sufficient, but time has proved them only an adjunct to proper recumbent or supportive treatment. Nevertheless, the conclusion is justly reached that some such operation greatly diminishes the length of treatment necessary both for children and for adults.

I wish to report certain observations made on some thirty-three cases of tuberculosis of the spine that we have operated upon in Denver between 1915 and 1927, mainly at the Children's Hospital. In this series, the Albee tibial graft was done in the first three cases, but since then the surgical treatment has been limited to the spinal fusion of Hibbs.

Our routine treatment since 1915 in children with tuberculosis of the spine has been as follows. After keeping the patient in bed a few days, to accustom him to his surroundings, we place him on his back on a curved Bradford gas pipe frame covered with soft, slightly yielding canvas, so as to secure a position of marked hyperextension of the body. Folded sheets are placed under the kyphos. In a few days the child becomes relieved of the acute pain in his back. Then a plaster shell is made to fit under him over the Bradford Frame to hold him more securely and to give him more hyperextension. In this position the child may lie contentedly for perhaps a month or two before operation. The surgical procedure used is a Hibbs "fusion." In this operation, with the patient prone, a longitudinal median incision



FIG. 2. CASE 1. Post-operative.

exposes some seven or nine posterior spinous processes, so as to get well below and well above the diseased area. The posterior processes are stripped of their periosteum above, below, and laterally, and likewise the laminae and transverse processes far enough laterally to expose the interarticular facets. Hemorrhage is controlled by hot sponges. Fusion of the vertebrae is then accomplished; first, by curetting the interarticular facets right and left; secondly, by chipping off bone superiorly and inferiorly from all the laminae right and left; and finally, by fracturing, at their bases, the posterior processes so that each process will fall down to contact the one below. The wound is then closed, without drainage, by suturing the periosteum, ligamentous tissue, fascia, and skin. In this way, we aim to secure five lines of fusion; because the curetted facets will become arthrodesed, the laminae with the chipped bone will form more or less of a continuous wall on either side of the median line, and lastly in the median line, the posterior spinous processes should bring about a continuous, practically unyielding line of bone, all covered by periosteum. These five lines of fusion, if properly made,

will offer a strong resistance to further deformity. Considerable dressing is applied because the child is placed either immediately or the next day on his back on the previously made shell on the Bradford Frame.

The child remains thus on the frame for some fourteen weeks, the stitches being removed at the end of the first two weeks. A Taylor spinal brace with two uprights is fitted to him and he is allowed gradually to get up and about. He is to wear this brace for the balance of one year, and then slowly to discard it, unless his condition demands continued support. Frequent post-operative x-rays are taken.

Of the thirty-three cases of tuberculosis of the spine, we cannot make as full reports as we would wish, principally because in the earlier cases we were handicapped in not getting x-ray views before and after operation. The age varied from four years to forty-nine years, the average being thirteen years at time of operation. There were seventeen males and sixteen females. The length of disease, as far as could be ascertained when the cases were first seen, varied from four weeks to thirty-one years.



FIG. 3. CASE 1. Post-operative.



FIG. 4, CASE 1. Final View

The portions of the spine involved, included all the vertebrae (from the 1st dorsal to the 5th lumbar), but notably the 6th and 7th dorsal and the 11th and 12th dorsal. The number of vertebrae involved varied from two to six, the kyphos in the mildest case being practically nil, and in the severest case forming a very prominent right angle knuckle.

Pre-operative treatment varied greatly as to length of time and as to type, because as a general rule the early treatment had not anticipated surgical interference. In most cases there was the history of long cast and brace support, alternating with bed treatment, with or without the plaster shell. In slightly more than half the cases, varying periods of recumbency, with either the plaster shell or Bradford Frame or both, were the rule. The operative treatment in three of the thirty-three cases was the Albee method of grafting the tibial transplant into some five split spinous processes, while in the other thirty cases, the fusion operation of Hibbs, as described above, was performed involving anywhere from five to nine vertebrae, depending upon the condition of the child. The operative mortality was three; the first case evidently one of status lymphaticus, the child passing out on the table; the second death occurring six hours after oper-

ation, apparently from embolism; and the third case surviving until a central pneumonia caused death on the third day.

Subsequent treatment consisted, in the adults, of a period of recumbency varying with the severity of the case. The post-operative method employed in most of the children was recumbency for at least fourteen weeks on the Bradford Frame, before the child was allowed to be up and around. Then a spinal brace was given, to be worn for at least one year after the operation. In a number of cases longer periods of brace wearing were considered necessary. Subsequent x-rays were taken in the more recent cases to determine the amount of fusion, and the change, if any, in the angle of the kyphos.

The end results have been most satisfactory for the greater part. There have been a very few exceptions where the treatment as outlined did not stop the tendency to increasing deformity, but in general there has been noted the definite local and general improvement of the individual with the arrest of the progress of the disease and in some cases actual diminution of the kyphos as proved by x-ray. The most notable impression gained was the early definite clinical improvement following the operations, in cases where previous more or less carefully carried out conservative measures had been the rule.

I wish to report in more detail some four or five cases that we were able to follow up rather carefully. In these slides, the post-operative fusion we hope to show, involve the posterior processes. The other fusion is too fine to show by x-ray slides.

Report of Cases

Case 1—J. G. This boy of seven was seen in March, 1925, with a moderate mid-dorsal kyphos, decided rigidity and pain. The x-ray taken—Figure 1—on entering the Children's Hospital showed a marked destruction of the 7th and 8th dorsal bodies. He was placed on a shell on a frame and in five weeks a spinal fusion was done, including the 5th to the 11th dorsal. There was post-operative recumbency for over five months, an x-ray at the end of that time showing some fusion of the dorsal spine with slightly less kyphosis. A Taylor brace was applied and he was allowed up. The next x-ray, taken six and one-half months later—Figure 2—shows more fusion with, however, slightly more angulation. Another x-ray in another eight months—Figure 3—shows still more fusion, while the last picture—Figure 4—taken in another five months, shows a healed process

with dense fusion and less kyphosis. He is doing well now at home, with no pain or discomfort and this month is entering school.

Case 2—B. K. This boy was four years old when admitted in February, 1925, with a history of long cast treatment. He showed no muscle rigidity, but there was the kyphosis at the 12th dorsal vertebra. Operation took place in four months following much otitis media, and an x-ray taken eight months later gives evidence of some fusion, though not as much as in a better nourished child. In five months again the x-ray shows a better condition—more bone formation, while our final view will prove that considerable fusion has taken place. He is not wearing any brace now, and gives all the evidences of an excellent result.

Case 3—F. A. This next case, four and one-half years of age, entered the Children's Hospital in June, 1924, with a marked low lumbar kyphosis, and attendant pain, and rigidity. The pre-operative x-ray showed a marked destruction of the 4th and 5th lumbar. After a plaster shell and recumbency on the Bradford Frame for three weeks, fusion was done from the 12th dorsal to the sacrum, and the child put back on the frame for five months. An x-ray in January showed slight fusion, while the last picture showed definitely more fusion. Then she left for home with her brace and was told to return, but evidently the long distance from Denver was too much for her parents to consider again. She was in excellent condition on leaving the hospital, without pain or muscular rigidity.

Case 4—R. T. Here is a colored child of four that was referred by Dr. Eastlake of Denver, who suspected spinal tuberculosis and had this x-ray taken, which shows cartilage destruction between the 11th and 12th dorsal. She was put immediately on a plaster shell on a Bradford Frame with heliotherapy. Eight months later, in spite of continuous recumbency, more destruction had taken place. She was operated upon a month later, a fusion being done from the 8th dorsal to the 4th lumbar. Recumbency was continued for fourteen to fifteen weeks. A Taylor brace was worn for one year, at the end of which time this slide shows fusion of the two vertebral bodies



FIG. 5, CASE 5. Pre-operative.

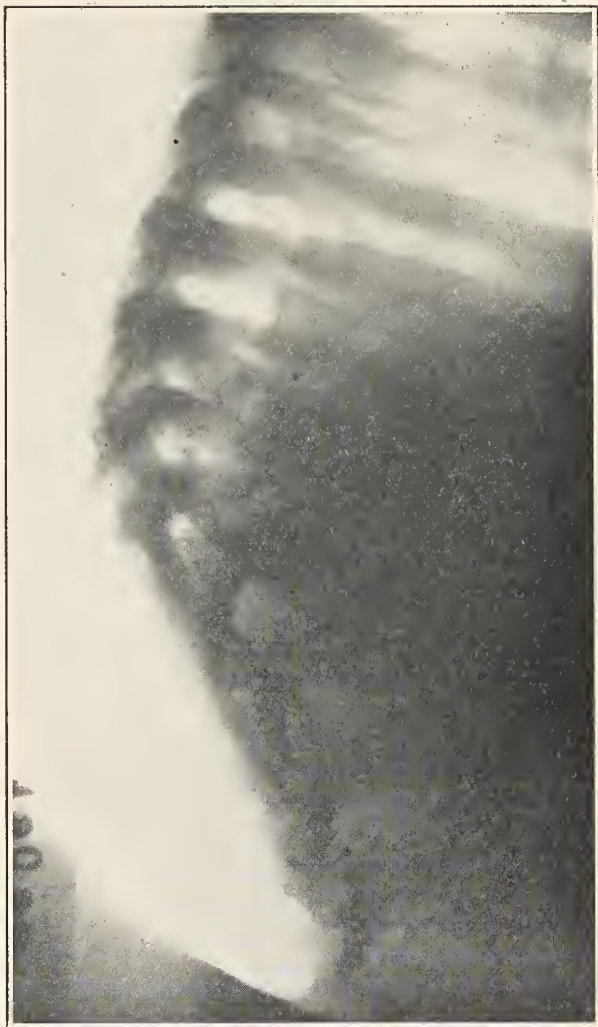


FIG. 6, CASE 5. Post-operative.

and the fusion of the posterior spinal processes with excellent position. She has now left off the brace completely with no evidence of return of symptoms.

Case 5—C. M. This next child, aged five and one-half, entered Children's Hospital in September, 1925, with a marked kyphosis—Figure 5—with destruction of the 9th, 10th, 11th and 12th dorsal vertebrae. She could not walk without assistance and showed exaggerated reflexes. We placed her in a plaster shell and on a Bradford Frame for a month before operation, which included a fusion from the 6th dorsal to the 2nd lumbar. Recumbency was continued for nearly four months. An x-ray—Figure 6—taken at the end of that time showed a marked lessening of the kyphosis. The next, five months later, presents some visible fusion, while in another three months we can see still less kyphosis and more fusion. The brace was now slowly discarded and our final view of this case—Figure 7—shows increase in density along the line of the fused processes. This child has been one of our best examples of the benefit of operative procedure.

Case 6—F. L. This next case has been somewhat disappointing. We first saw him in June, 1924, at the age of a little over three, when the boy presented definite rigidity of the back, and would support himself by holding his hands against his thighs. A kyphosis presented at the level of the 10th dorsal, the x-ray by Dr. Stephenson showing involvement of three vertebrae. He entered Children's Hospital, and was placed upon



FIG. 7, CASE 5. Final View.

a plaster shell, in which he lay at the hospital and at home for seven months, when a second x-ray showed increase in bone destruction, though slight improvement in kyphosis. In January, 1925, operation was performed, fusion of 6th dorsal to 2nd lumbar, inclusive. Good post-operative reaction, the patient remaining on the shell and frame. Eight months later there showed no change in the kyphosis, but some little fusion along the posterior processes. Later the cast was discarded for a spinal brace and he was allowed up in five or six months from date of operation with the snugly fitting spinal brace. The next ray showed, in spite of all this treatment, more kyphosis and more bone destruction. The last film still shows more destruction and probably a slight increase of the kyphosis. Here then is a case when even both conservative and radical treatment has not been sufficient to offset the destructive progress in a severe case.

Only seven of the slides shown are included in this article.

Conclusions

1. The essential factor in the treatment of spinal tuberculosis is rest to the part, best secured by recumbency and proper back support, these measures of course combined with proper hygienic measures of heliotherapy, etc.

2. The early treatment is recumbency on some mechanical frame or other device that will encourage correction of the deformity.

3. Recumbency should be accompanied or followed by mechanical or operative support.

4. Operative support, consisting of tibial transplant or spinal fusion is superior to mechanical support by brace or cast because it is closer to the lesion, increases with time, cannot be removed by careless parents, does

not need adjustment from time to time, and decreases the length of time of treatment.

5. Operative support in itself is not sufficient; it should be preceded by a sufficient period of recumbency; it should also be followed by further recumbency for a few months, and it should be accompanied for at least a year by thorough brace treatment.

DISCUSSION

Atha Thomas, Pueblo: This paper, it seems to me, is very interesting and convincing, and is of great value in correcting a misapprehension prevalent in this country, particularly on the value of this operation. I remember an experience as an officer in one of the large orthopedic hospitals in New York. When I came out, I was very much prejudiced against operative treatment, for this reason: The surgeons there in their eagerness overlooked the fact that it was an adjunct to the general treatment of tuberculosis. They lost sight of the general treatment, and I remember one disastrous experience, a case operated on by one of the surgeons, without brace, without cast—had been playing tennis, and brought in before the operation. I have seen them opened up and abscesses drained all around the graft, and the graft perfectly tight. It seems to me in proper and selected cases we have a very valuable procedure. In Europe they realize that and they recognize it in selecting their cases, and only use it as an adjunct. It comes down to the point that it is an economic question, and you can shorten the convalescence and give them more efficient fixation. I do not think in children it is going to do, entirely—simple recumbency and immobilization. I think when you can get cooperation, the time factor is not to be considered. You all know in doing tuberculous work the parents lose interest and become discouraged, and after a year spent in carrying out your regimen they get tired and cannot see the improvement, so leave you. Certainly, I think it is indicated from an economic standpoint, and is a very valuable procedure.

C. O. Giese, Colorado Springs: I just want to say one word about a case of a marked kyphosis with complete paralysis of the legs, bladder and rectum, which lasted for a year. I do not say that this case would not have improved more rapidly under operation, but he was not operated on, but was treated by posture alone, with practically complete restoration of the nerves. I do not know whether these cases are common or not, but this is the only one I have seen. There is one thing to be said about it, and that is the very fact that he had had complete paralysis made his rest more complete, which was perhaps a factor in the cure.

The French are proud of the fact that they have the Eiffel Tower, the highest structure in the world; the Garabit viaduct, the biggest metal viaduct; L'île de France, 42,000 tons, the biggest steamer built since the war; the Saint Pierre du Vauvray bridge, the biggest reinforced concrete bridge; the fastest electric train, running from Paris to Vierzon-Ville; Le Bourget, the biggest airfield; the biggest aviation hangars, at Orly; the Canal de Rove, the biggest underground canal; the billion candle power searchlight at Mont Valérien and the 50,000-kilowatt alternating current generators at Gennevilliers.

THE BASAL METABOLISM IN PULMONARY TUBERCULOSIS*

A Study of 128 Unselected Sanatorium Cases and a Group of 20 Normals

LORENZ W. FRANK, M.D., AND LUMIR R. SAFARIK, M.D.,
DENVER

Casual observation of an advanced case of pulmonary tuberculosis at once conveys the impression that the nutrition of the individual has been profoundly affected, and the common name, "consumption," implies a gradual wasting away of the body cells. Tissue cells, not the seat of the tuberculous lesion, at times undergo such changes as amyloidosis or cloudy swelling, while others, notably muscles, show brown atrophy or fatty degeneration and there is a loss of subcutaneous fat.

It is not definitely known whether these changes in the cells are anabolic or catabolic, but it is probably both, due to the action of the circulating tuberculo-toxins. However, this interference with nutrition is not so apparent in all cases of advanced tuberculosis and the body weight of some may be normal or even more than normal, particularly in the very chronic cases and those kept at rest. It seems probable that there are certain physio-chemical processes involved in these changes that are not reflected in the ordinary estimation of the basal metabolic rate, and that this test is only an indirect measure of the degree of toxicity present in a given case, or the disturbance produced in the muscular and nervous systems by this toxicity. Most writers on this subject dismiss it with the statement that the basal metabolic rate is increased in advanced tuberculosis and disregard the presence or absence of fever. However, Mosenthal¹, quoting Du Bois' figures, gives a plus 15 to plus 35 per cent in tuberculosis with fever of about 104 degrees Fahrenheit and minus 3 to plus 15 per cent in cases with no fever. Roth² reviews all the metabolic aspects of tuberculosis and their consequences for treatment. He confirms the increased oxygen consumption in grave cases. Cisi³ tabulates the findings in forty-nine tuberculous children, some examined more than once. The basal metabolism was nor-

mal in 79.5 per cent, above normal in 16.3 per cent, and below normal in 6.2 per cent.

The present study represents an attempt to determine the average basal metabolic rate in cases of adult pulmonary tuberculosis, both in toxic and non-toxic cases. The series of 128 cases was divided into two groups; the first group consisting of 54 individuals whose daily average temperature was over 99.4 degrees Fahrenheit and the second group of 74 individuals whose daily average temperature was not more than 99.4 degrees Fahrenheit, and who most of the time had no fever. There was also studied, for comparison, a small group of 20 persons who were apparently in normal health. The estimations were made when the subjects were afebrile. Two readings were taken of each subject, and many of them were rechecked a number of times. Three cases that were never without fever are not included in the calculation of our results.

The following technic was used. The subjects were given their usual evening meal on the day preceding the test. On awakening, they were weighed and measured. No breakfast was given. The test was made at 9:00 a. m., about 14 to 16 hours after the intake of food when the subject was in a basal state. The body temperature, pulse rate, and respirations were recorded before the test was made.

The apparatus used was a portable Benedict-Roth machine. This is one of the number of types for measuring the basal metabolism by indirect calorimetry in which the subject is attached by means of mouth-pieces, nose pieces, or masks, as differentiated from the direct type where the subject is enclosed in a respiration chamber. The former lends itself well to clinical usage, whereas the latter is indispensable in certain research problems. In the Benedict-Roth apparatus, Roth has removed the electric blower originally contained in the Benedict portable, and substituted rubber flutter valves of the type devised by Major Sudd for

*Read before the fifty-seventh annual meeting of the Colorado State Medical Society, Glenwood Springs, Sept. 6, 7, 8, 1927.

use in gas masks. It has a kymograph attached with a timer to record the respiratory tracing and consumption of oxygen. The fall in the spirometer can thus be measured with great accuracy. The apparatus is intended primarily for the measurement of oxygen consumption. If we assume that the respiratory quotient will be 0.82 in the morning at least 14 hours after the last meal, we can employ the calorific value of a liter of oxygen, 4.825, which will be sufficiently accurate for clinical purposes. This does not take into account the fact that we derive about 15 per cent of our calories from protein and if we make the necessary allowance for this, a factor of 4.78 would be obtained for a respiratory quotient of 0.82. In basal experiments in the calorimeter the quotient is usually between 0.80 and 0.84, but may be as low as 0.78 or as high as 0.90. The proper factor for the calorific value of oxygen may be anywhere between 4.7 and 4.9. According to Du Bois,⁴⁵ the indirect method of calorimetry has proved satisfactory where great care is used in the technic. It was used by him with Coleman in their typhoid fever studies and found to be of great service. In his opinion, the respiratory quotient is not affected by high altitudes when due allowance is made for the barometer in the correction of readings. He also believes that a longer rest period, that is, for more than one-half hour before the test, is necessary at this altitude than at sea level. This is in accordance with our findings. We have kept our patients at rest for at least two or three hours.

After the period of rest the subject is connected with the apparatus and allowed to become accustomed to it. Following this, a kymographic tracing for six minutes is obtained. At least two such tracings were made in each case and the lower reading, usually the second, accepted. The rise of the oxygen line was measured on each chart. In well-controlled cases there was little or no discrepancy in the two readings, seldom more than two or three millimeters. Corrections were made for temperature of the spirometer, barometric pressure, and moisture. The basal metabolic rate was deter-

mined by the Aub-Du Bois standards. It is to be remembered that these standards for normals average 3 to 4 per cent higher than the results usually obtained on well-trained subjects. The normals were nurses and other help at the sanatorium and outside individuals who were apparently without any disease. In the former the same methods were used as in the studies of the tuberculous patients. In the latter the apparatus was moved to their homes, the subjects being required to remain in bed on the morning of the test without breakfast.

TABLE I
Toxic Cases

Total Number 54	{ Males 22
	{ Females 32
B.M.R.—Lowest reading minus 16 per cent	
Highest reading plus 45 per cent	
Average reading plus 4 per cent	

TABLE II
Non-toxic Cases

Total Number 74	{ Males 29
	{ Females 45
B.M.R.—Lowest reading minus 23 per cent	
Highest reading plus 14 per cent	
Average reading minus 4.7 per cent	

TABLE III
Pneumothorax Cases

Total Number 19	{ Males 4
	{ Females 15
B.M.R.—Lowest reading minus 21 per cent	
Highest reading plus 10 per cent	
Average reading minus 2.3 per cent	

TABLE IV
Normal Cases

Total Number 20	{ Males 2
	{ Females 18
B.M.R.—Lowest reading minus 14 per cent	
Highest reading plus 8 per cent	
Average reading minus 5 per cent	

The metabolism is independent of the rate of pulmonary ventilation; i. e., that the amount of oxygen consumed is dependent on the rate of body metabolism and not upon the amount taken into the lungs.⁶ This is further supported by the rates found in our pneumothorax cases whose average basal metabolic rate was minus 2.3 per cent, as compared with an average of minus 5 per cent in the normal cases. Boothby and Sandiford⁷ report a summary of the basal metabolism data on 8,614 subjects. The outstanding fact is that 77 per cent of all patients, other than those with disorders of the thyroid, had basal metabolic rates within the restricted Du Bois normal limits of plus 10 to minus 10 per cent; 90 per cent had basal metabolic rates within plus 15 to minus 15 per cent. The high percentage of normal

results is most significant when it is considered that all except 127 of the subjects who comprised the normal group had a functional or organic disease. Their average basal metabolic rate calculated by the Du Bois formula for 102 normal persons, 61 females and 41 males whose ages varied from 21 to 69 years, is plus 0.6 per cent.

While our series of normals is too small from which to draw conclusions, it suggests that the slightly lower rate; namely, an average of minus 5 per cent may have been influenced by climatological factors. Jaquet⁸ found that under a pressure which is equal to an altitude of 1,800 meters, the lethal dose of certain arsenicals is reduced by 22 to 23 per cent, as compared with the lethal dose under 760 mm. pressure. This demonstrates that even at an altitude which usually does not produce any subjective symptoms the metabolic processes are altered. Brock and Haskins⁹ studied five tuberculous persons and report an average basal metabolic rate of minus 5.4 per cent. They conclude that the basal metabolism of tuberculous individuals may be normal or below the average normal, and suggest that inactivity, undernourishment, and exposure to atmospheric conditions may account for low metabolism as compared to the normal.

From the above tables it will be seen that the basal metabolic rate in pulmonary tuberculosis falls within the generally accepted normal limits, providing that the test is made under basal conditions and in the morning when even the toxic cases have no fever, though they may have a high fever later in the day. There is some uniformity of relationship between the height of the fever and the increase of the basal metabolic rate as shown by the following case in whom readings were taken at different times when varying degrees of temperature when present.

A machinist, 21 years of age, entered the sanatorium on August 25, 1926, as a far advanced case. The A. M. temperature was taken at the time the basal metabolic rate was estimated. On September 9, 1926, the morning temperature was 97.4 degrees Fahrenheit and P. M. temperature 99.8 de-

grees Fahrenheit; the basal metabolic rate was plus 17. On September 23, 1926, he had an acute attack of pleurisy with effusion, at which time the A. M. temperature was 101.2 degrees Fahrenheit, the P. M. temperature was 103.4 degrees Fahrenheit, and the basal metabolic rate was plus 38. On February 4, 1927, the A. M. temperature was 97.8 degrees Fahrenheit, the P. M. temperature was 99.2 degrees Fahrenheit, and the basal metabolic rate was plus 12 per cent.

Extreme elevation of the basal metabolic rate was not observed in this series, the highest rate being plus 45 and that in a very advanced case with high fever. In this connection it is well to remember that the rates in toxic goiter often reach plus 90 to 100 per cent or even more. In the toxic group there were 32 cases with plus readings and 22 with minus readings. In the non-toxic group there were 22 cases with plus readings and 52 cases with minus readings. Twelve of the cases with minus readings had rates that varied from minus 17 to minus 24 and on closer observation it was found that some of them had evidence of hypothyroidism, such as scaling of the skin, coarse hair, crepitation in joints, and more or less sluggishness of the mentality, and furthermore that these symptoms were improved by the administration of thyroid extract. One such case had a basal metabolic rate of minus 22 per cent. After a short course of thyroid extract the basal metabolic rate was plus 2 per cent with a concomitant improvement of the hypothyroid symptoms, though there was no appreciable change in the tuberculosis.

Osler in his text book stated that myxoedema frequently ended with tuberculosis. These cases with a low basal metabolic rate are probably cases of mild hypothyroidism associated with tuberculosis.

There were no cases of high or even moderately high rates that could not be accounted for by activity of the tuberculosis. Sloan¹⁰ reports three cases in which goiter and tuberculosis coexisted, and states further that during the last 15 years he has operated upon more than 400 cases of goiter who were known to be tuberculous before

operation. This is not in accordance with our experience; in more than 1,400 sanatorium cases we did not observe a single case of goiter or a case with symptoms of hyperthyroidism sufficiently marked to require operation, and in those cases that did have definite goiter and required operation, active tuberculosis could not be demonstrated. Symptoms of hyperthyroidism, such as tachycardia, tremor, sweating, hot flushes, and enlargement of the thyroid gland do occur in tuberculosis, particularly in the incipient stage, but as the tuberculous disease advances they disappear. Conversely, if the thyrotoxicosis becomes marked, the tuberculosis is likely to be mild and one may be apt to conclude that tuberculosis never existed. Webb¹¹ is of the opinion that "the increase in size and function of the thyroid (if present in tuberculosis) is a phase in the marshalling of the body's defensive forces against the invading disease." Musser¹² states that pathologists are agreed that in the thyroid tuberculosis exists practically only as a part of an acute miliary process or as a result of extension from near-by structures, such as the cervical spine. It is conceivable, however, that in tuberculosis of the thyroid there may be a quiescent lesion in the lungs or glands acting as a focus, such as we find in meningitis or tuberculosis of the eye, without the presence of miliary tuberculosis.

Differential Diagnosis

The practical application of the estimation of the basal metabolic rate is not the direct diagnosis of pulmonary tuberculosis, but it gives valuable negative evidence, and in that way is of great help in the differentiation between early tuberculosis, goiter, and a large group of neuroses that are sometimes called neuro-circulatory asthenia. In well-developed cases of either goiter or tuberculosis the diagnosis can usually be made by the ordinary clinical methods, but in the early border-line cases the estimation of the basal metabolic rate is a distinct help.

Certain symptoms, such as tachycardia, low grade fever, vasomotor disturbances, loss of weight, fatigability, sweating, nervousness, tremor, abnormal psychic states,

etc., are common to all these conditions, but a study of individual symptoms may be helpful. An increased pulse rate, if due to tuberculosis or the neuroses, is usually slowed by rest, but if due to hyperthyroidism, it may remain rapid (120 or more beats per minute) even after prolonged rest. Low grade fever in tuberculosis is almost invariably increased by exercise, particularly if this exercise be taken in the afternoon. In hyperthyroidism the fever is irregular, and in the neuroses may even be reduced by exercise. The blood pressure in tuberculosis and in the nervous states is usually low, while in goiter it is normal or somewhat elevated. Anorexia is often, though by no means always, present in tuberculosis, while in hyperthyroidism the appetite may be voracious or erratic. Diarrhea, as a symptom of hyperthyroidism, or as an expression of the general toxemia of tuberculosis, or of tuberculosis of the intestinal tract, will hardly be a factor in these early cases, though it should be remembered.

These symptoms are so common and so well known that it hardly seems necessary to mention them, but it is also a well known fact that when they are mild it is one of our most difficult tasks to correctly evaluate them. They may have great significance even when they are so mild that they are hard to recognize. If, then, we have a method such as the estimation of the basal metabolic rate, which is normal in tuberculosis and the neuroses (providing the test be made under basal condition) and elevated in hyperthyroidism, and for practical purposes only in hyperthyroidism*, its value can readily be appreciated.

The following brief case reports may serve to illustrate some of the points mentioned and to show the value of the determination of the basal metabolic rate as an added help in arriving at a diagnosis:

Case 1.—Miss G. L., 22, nurse. Admitted to the sanatorium on January 30, 1925. Her chief complaint was dyspnoea and weakness. There was slight cough and expectoration. No enlargement of the thyroid gland and the eyes were normal. The physical and x-ray findings in the lungs were indefinite. There were periods of fever ranging

*The basal metabolic rate is increased in such diseases as severe diabetes, pernicious anemia, leukemia, pellagra, etc., but other findings in them are so distinctive that they need not be taken into consideration in this paper.

between 99 and 100 degrees Fahrenheit at times reaching 102 degrees Fahrenheit. The pulse averaged 90 to 100 beats per minute but on some days became much faster (160) while the patient remained at rest. The basal metabolic rate was plus 90 per cent. After a short course of Lugol's Solution this patient was cured by means of a thyroidectomy, and there have been no signs of active tuberculosis to the present time.

Case 2.—Miss H. B., an x-ray technician, 19 years of age, complained of weakness and fatigue. Pain in left chest. Some cough and expectoration and an occasional night sweat. Sleep was restless and she complained of nervousness. Appetite erratic and there was a tendency to diarrhea. Thyroid enlarged. Pulse 125. B. P. 102-70. The physical and x-ray examinations revealed no evidence of tuberculous disease in the lungs. The sputum was negative for tubercle bacilli. The basal metabolic rate taken at the patient's home was plus 1 per cent. The pulse rate became normal during the test. After being assured that she had neither tuberculosis nor goiter she has been able to continue her work without further trouble.

Case 3.—Mrs. A. M., 29, housewife. Chief complaint, fatigability and weakness. She had had no other symptoms for two years except occasional slight rises of temperature with a pulse rate of about 100. There were no definite physical or x-ray signs in the lungs. The thyroid was definitely enlarged and there was bulging of the eyes. Slight tremor of the fingers. The basal metabolic rate was minus 7 per cent. After the above condition had existed for about two years she developed a very slight cough and occasional blood-streaked sputum. The sputum was examined repeatedly, but tubercle bacilli were not found until three and a half years after the beginning of illness, when a few were found in blood-streaked sputum by the antiformin method. The lung findings still remain indefinite.

Conclusions

1. The basal metabolism in pulmonary tuberculosis, if estimated under basal conditions, falls within the generally accepted normal limits.

2. The test is of some value in differentiating early tuberculosis, hyperthyroidism, and various neuroses.

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DISCUSSION

O. M. Gilbert, Boulder: I think this is a valuable paper, and it covers the situation quite well in general. I believe if the limitations which Dr. Frank has put upon it are observed, we will find it of value. Regarding febrile patients being normally more active in their metabolism, I hope the doctor will tell us whether he was able to draw the same conclusions in the inverse order. It has impressed me that it does. In other words, if the patient runs three degrees below normal, that you might subtract roughly 21 points from your normal expectation. I think it is true, in the few metabolisms that I have done, that the patient in a low, depressed condition, temperature away below normal, is inclined to run a low metabolism.

I am not quite so impressed, as Dr. Frank is, by the absence of hyperthyroid symptoms, or exophthalmic goiter or toxic adenoma in these patients. I have two under observation at the present time who run a basal metabolic rate sufficiently high, I think, to make it conclusive that they are of those types. I believe that this work, followed up and used as Dr. Frank has recommended that it be used, will be largely the means of determining other causes of these symptoms which are so confusing. For instance, these N. C. A.'s in the low-grade tuberculosis which worry us and the mild type of hyperthyroidism, if I may use that broad term, will be considerably enhanced by the application of these methods.

I. Bronfin, Denver: In connection with Dr. Frank's very excellent paper, I wish to report briefly the case of a man who had had a mildly active pulmonary tuberculosis for about 15 years, complicated by a large, apparently benign, goiter, considered of the colloid type. When admitted to the hospital, he suffered from marked abdominal symptoms, chiefly cramps and diarrhea, associated with a daily temperature ranging between 100 and 101° F. Our belief at first was that we were dealing here with an acute intestinal tuberculosis. The possibility, however, of a toxic diarrhea due to an over-active thyroid was not overlooked. The first basal metabolic rate was +46 and a few subsequent determinations ranged between plus 40 and plus 60. Under dietetic treatment, the intestinal symptoms became slightly improved, only to recur later in more aggravated form. Although considered a poor surgical risk, operative interference was deemed advisable, in view of the marked pressure symptoms from the extensive enlargement and because of the persistence of the intestinal symptoms. The patient, too, insisted upon surgical interference. Unfortunately, death followed shortly after the operation. In all probability, the goiter was at first benign, since it gave rise to no symptoms of consequence for about 15 years. It is possible that the tuberculous toxemia was a factor in causing the apparently benign enlargement to become converted into a frank case of hyperthyroidism.

I was particularly impressed with the type of case to which Dr. Frank administers thyroid extract. In sanatoria we have a relatively large

group of cases of apparently inactive tuberculosis. This group is examined from month to month, possibly for years, and we find stationary physical signs or no special abnormality within the chest. Yet, they have a subfebrile temperature, 99 to 99½ in the afternoon, and they complain of feeling generally below par. These cases are perplexing because one is reluctant to attribute these symptoms to tuberculosis. The basal metabolic rate is usually within the normal limit, although as a rule minus 5 or sometimes even minus 10. These are the cases in which thyroid extract is indicated because, as Dr. Sansum says, they begin to feel better under the influence of this drug. It is quite possible that in these cases there is a mild form of hypo-thyroidism which is not disclosed by the present methods of basal metabolic determination.

A. Minnig, Denver: Dr. Frank's paper is a very commendable one. I have done some work along this line in tuberculosis. I have come to the conclusion that you get a normal basal metabolic rate in these cases. The thing that we should take away home with us from this paper, if we take nothing else, is that we should, all of us, use the basal metabolic estimations routinely in our examinations. It is a very important help in medical diagnosis.

I am glad to note in this morning's discussion that the endocrines were so necessary in the treatment of tuberculosis. I just want to say that the combination of the thyroid, adrenal, and pituitary will help still more in some of these cases.

Dr. Frank (closing): In regard to the technique, I have a description of the technique in the paper. The time has been pretty much consumed, and I don't believe I will have an opportunity to read it. The main thing is to get a proper test. The apparatus is more or less complicated, particularly with this kymograph attachment, but with a little practice it can be done very easily. However, so many things can go wrong. For instance in using soda lime, we had at one time allowed it to become old, and we had a plus 54, and after that was corrected the patient had a minus 2. Practically all of these tests were made in the sanatorium with the patient in bed all night, and where they had been resting several hours before the test. Many times these tests are made when the patient comes to the office, in strange surroundings, and is very excited, and I do not think has had a sufficient period of rest before the test is made. Dr. Gilbert spoke of patients in a low, depressed condition, low metabolism. Of course, we have not had a chance to cover all these in one study; but roughly speaking, the sluggish cases were minus 4 per cent, and those that did not have fever in the afternoon averaged plus 4.7 per cent, so I suppose generally these cases have a low metabolism, we have a low basal metabolic rate. The exophthalmic goiter type is mighty rare. Many of these cases, particularly younger girls, have symptoms of hyperthyroidism, bulging eyes, and all those things; but the impression I meant to convey was that exophthalmic goiter with tuberculosis is rare, and usually rest would overcome the hyperthyroid symptoms that are present.

Notice

Dr. Kate Mead, who is writing a history of medical women, appeals to you to send in historical material as soon as possible and direct it registered to her in care of Brown, Shipley & Co., Bankers, 123 Pall Mall, London, England.

Dr. Mead requests every medical woman to write her own "Who's Who" and send it to the Bulletin office for the files.—Bulletin of the Medical Women's National Association.

NEWS NOTES

The executors of the Staff of St. Luke's Hospital gave a dinner January 5th in honor of Doctor W. W. Grant at the Denver Club. Doctors F. H. McNaught, Fosdick Jones, E. F. Dean and J. E. Kinney provided the dinner and invited several of Doctor Grant's old friends and associates.

The Denver County Medical Society met January 3rd. After listening to an excellent address by the retiring president, Dr. George Lingenfelt, they proceeded to elect the following officers for the year 1928:

James J. Waring, M.D., President.
Harry S. Finney, M.D., Vice President.
O. S. Fowler, M.D., Secretary.
H. W. Stuver, M.D., Treasurer.
A. J. Markley, M.D., Library Director.
S. B. Childs, M.D., Trustee.
R. G. Smith, M.D., Board of Censors.

Doctor and Mrs. C. F. Hegner and son have returned from a month's cruise in the American tropics. They sailed from New York and returned by way of New Orleans.

Doctors R. M. Wilder and H. E. Robertson of the Mayo Clinic were guests of the Denver County Medical Society Tuesday evening, January 17th. They presented five cases from the clinical and pathological viewpoint in a very interesting and instructive manner.

Doctor Wilder addressed members of the faculty of the University of Colorado and a few invited internists Monday, January 16th, on "Trends in Treatment of Diabetes Mellitus." Both meetings were well attended.

Members of the American College of Physicians have been notified that the annual meeting will be held in New Orleans, March 5th to 9th. Those planning to go will be showing appropriate consideration of the management of this journal by supporting our faithful local advertiser, the Burlington Railroad.

During the last month announcements have been made of the marriage of Dr. Atha Thomas of the Minnequa Hospital, Pueblo, and Dr. J. R. Ranson of Denver.

Doctor Robert G. Packard attended the annual meeting of the Clinical Orthopedic Society held at Memphis, Tennessee, January 9th and 10th.

MEDICAL SOCIETIES

NORTHEAST COLORADO

The Northeast Colorado Medical Society held its annual meeting and banquet Thursday evening, Jan. 12, 1928.

The officers elected for the following year are as follows:

President, C. I. Tripp, Sterling.
Vice president, D. H. Montgomery, Holyoke.
Secretary-treasurer, E. P. Hummel, Sterling.
Delegate, E. P. Hummel, Sterling.
Alternate, F. E. Palmer, Sterling.
Censor, J. H. Daniel, Sterling.

After the business meeting the doctors and their wives sat down to a well served dinner at Hotel Graham.

Dr. O. M. Gilbert and his wife were guests of the Society for the evening and Dr. Gilbert gave

a very fine dinner address on the subject, "The Progress of Modern Medicine."

The following doctors were present who are not members of the Society: Dr. Parker, Sedgwick, Colo.; Dr. W. S. Yates, Ovid, Colo.; Dr. J. M. Feder and wife, Peetz, Colo.

LAS ANIMAS COUNTY

At the last meeting of the Las Animas County Medical Society election of officers took place with the following result:

President, L. T. Richie, M.D.

Vice President, Ben Beshoar, M.D.

Secretary-Treasurer, M. C. Albi, M.D.

Delegate, John R. Espey.

Complying with your request, monthly reports of our meetings will be forwarded to you.

Fraternally yours,

MICHAEL C. ALBI, M.D.

SAN JUAN COUNTY

Officers of the Society for 1928 are as follows:

President, J. R. Trotter, Mancos.

Vice president, H. C. Turrell, Durango.

Secretary-treasurer, H. A. Lingenfelter, Durango.

Delegate, A. W. Robbins, Durango.

Alternate, H. A. Lingenfelter, Durango.

EL PASO COUNTY

The regular meeting of the El Paso County Medical Society was held in the Medical Library on Wednesday evening, Jan. 11, 1928. Thirty members and visitors were present. A resolution was adopted urging our representatives and senators in Congress to use their influence in defeating the proposed bill forbidding the use of dogs for experimental purposes. It was felt that it was very important to defeat this entering wedge of the anti-vivisectionists. A very interesting and scholarly paper was given us by Dr. H. J. Sims of Littleton, Colo., upon the original work that he has been doing on gall bladders. The title of his paper was The Physiology of the Gall Bladder with a Demonstration of Its Contractility.

HENRY C. FREUDENBERGER

The death of Dr. Henry C. Freudenberger of Colorado Springs occurred on Dec. 21, 1927. Dr. Freudenberger was born in Clarksburg, Missouri, March 24, 1874. He received his A.B. degree from Missouri University in 1900 and his M.D. degree from the University of Missouri Medical College in 1903. He practiced in Montclair county, Missouri, from 1903 to 1920 and was secretary of the Montclair County Medical Society from 1906 to 1909. He moved to Colorado Springs in 1920 and was active in the practice of medicine from that time until his death.

JAMES CAMPBELL TODD

Dr. James Campbell Todd died at his home in Boulder, Colo., Jan. 6, 1928, after a long illness.

He was born in Shreve, Ohio, March 17, 1874. His boyhood was spent in that state where he attended the public schools and finally graduated from Wooster College in 1897. with the degree of Bachelor of Philosophy. He then attended the University of Pennsylvania School of Medicine, graduating in 1900. He served his internship in the Allegheny General Hospital of Pittsburg in 1900-1901. At this time his health failed, and he

came to Colorado in the spring of 1903. He located in Denver and soon became identified with the medical profession of that city because of his manifest sincerity and ability.

While his first interests following graduation were in the field of obstetrics, after his arrival in Denver he limited his activities to laboratory methods of clinical diagnosis.

He soon became identified in the field of medical education as Associate Professor of Pathology in the Denver and Gross Medical College of Medicine, and also acted as pathologist on the staffs of Mercy, St. Anthony and Denver General hospitals.

In 1910 he retired from private practice to devote his entire time to teaching. He moved to Boulder and became professor of pathology of the University of Colorado. In 1911 the University of Colorado School of Medicine absorbed the Denver and Gross College of Medicine. Dr. Todd remained with the Boulder division of the school, later acting as its secretary.

As his interests were mainly in the fields of hematology and parasitology, in 1916 he became the head of the Department of Clinical Pathology, which he created, and this position he held at the time of his death.

Dr. Todd was best known through his book, "Clinical Diagnosis by Laboratory Methods," which first appeared in 1908, and which has since gone through six editions. It is recognized the world over as an authority in its field. This work in which he centered all his energy has in every edition been brought out under the handicap of ill health. In the last edition which came out in September, 1927, Dr. Arthur H. Sanford of the Mayo Clinic appears as co-author.

He was a member of the Boulder County Medical Society, Colorado State Medical Society, American Medical Association, American Society of Clinical Pathologists, American Society for the Advancement of Science, Fellow of the American College of Physicians, and an honorary member of the Colorado Society of Clinical Pathologists. He also belonged to the Phi Beta Kappa and Sigma Xi honorary fraternities, the Phi Gamma Delta social fraternity, the Phi Alpha Sigma medical fraternity, and the Sons of the American Revolution.

His widow, Edith B. Todd; his father, Dr. Joe H. Todd, and two daughters, Ann Ophelia and Edith, survive him.

COLORADO GENERAL HOSPITAL

A resume of the activities of this hospital for the calendar year 1927 should be of interest to the medical profession of the state, and also to some of the laity. At the beginning of the year all the wards of the hospital, six in number, were opened. Previous to this only four had been in use, but a steady increase in the number of patients necessitated the opening of the remaining wards.

There has been some change in the personnel in charge of administration. On December 1, Dr. Edgar A. Bocock resigned as superintendent, to locate in Washington, D. C. His place was temporarily taken over by Dr. Maurice H. Rees, Dean of the School of Medicine. At their subsequent meeting, the Board of Regents appointed Dr. Rees, acting superintendent. Mr. Frank J. Walter, who had been purchasing agent for the institution, was at the same time appointed acting business manager.

A recapitulation of figures obtained from the Record Department of the hospital is as follows:

Number of patients admitted during the year
(including newborn) 2,185

Men	634
Women	993
Children	419
Newborn	139
	2,185
Number of patients discharged during the year	2,036
Deaths (5.1 per cent of admissions)	129
Autopsies (62 per cent of deaths)	80

Total number of patient days for the year...43,778
 Average daily number of patients..... 120
 Average length of stay in hospital, days..... 20

When the new wards were opened the beds available were quickly utilized, and the year shows an increase in the daily average of patients of approximately 35 per cent above 1926. All the year the institution averaged within 80 per cent of capacity, and on several days went over the limit. This is better than had been hoped, and a continuance of this growth will necessitate in the near future the building of a new wing to accommodate the increase.

The request for hospital care has come from over 90 per cent of the counties of the state, as 57 of the 63 counties have been represented by one or more patients during the year. Patients are admitted only as provided by law and the authorities in charge must abide by the rules provided. If the physicians who wish to send in patients as county cases would see that the necessary papers are made out by the county commissioners, much avoidable delay would be prevented. Otherwise the hospital is required by law to charge the full per diem rate. Necessary forms are in the hands of all boards of county commissioners, and have in the past been sent to all

physicians of the state. Additional forms will be sent by the superintendent on request.

As the hospital was created for the treatment of citizens of the state whose illness is such that promises a hope for improvement or cure, a limit of 60 days has been set for the period of hospitalization, unless extended by the staff and superintendent. No facilities are available for cases of pulmonary tuberculosis, who can be cared for much better in other institutions especially designed and conducted.

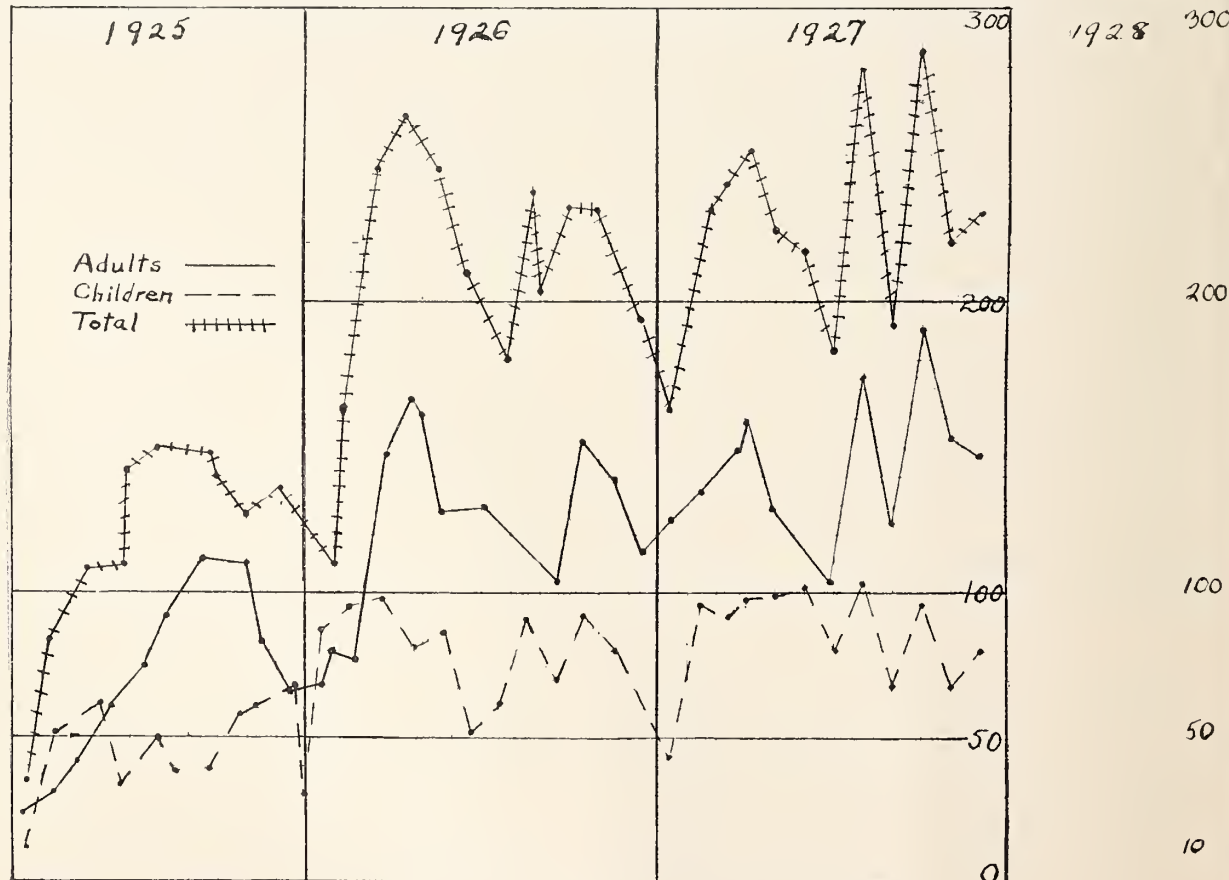
The Out-patients' Department has also grown in the past year as these figures will show:

Total admissions for the year	35,166
New patients (14.4 per cent)	5,081
Individuals refused treatment for various reasons (9.7 per cent)	546

An endeavor is made to curtail the abuse of the Clinic, and the number of individuals refused admission shows that an effort is made to keep out persons not entitled to free treatment. Financial reasons constitute the majority of the refusals of admission. Any suspected cases are followed up by the Social Service Department, or by follow-up letters to physicians who have previously treated the applicant, if known. Physicians at large can afford great aid in the prevention of abuse of the Clinic if they will call the attention of the superintendent to such cases, as they come to their notice. This information will be appreciated by the hospital authorities, and it is often not obtainable in any other manner. For false or erroneous information may have been given by the applicant on admission. Cooperation of the physicians of the state with this institution should and will work for the betterment of both.

E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL - VISITS - OUT PATIENT CLINIC



Graph I. Increase in Total Admissions Per Year

COLORADO PSYCHOPATHIC HOSPITAL

This institution has established itself in the state as a valuable asset to its citizens. Its activities are so varied and diverse that mention can only be made of the major functions.

There has been a very definite increase in the admissions to the hospital since its opening, as is shown in Graph I. In addition a similar increase has occurred in cases admitted to the Out-Patients' Department of this institution, as shown in Graph II.

For the first time the institution has a complete professional personnel. This has allowed an increase in its activities, and an extension of its work into the state. The work of the Traveling Clinic has flourished the past year, and has progressed until plans are under way for the establishment of several Base Clinics in different localities. These Clinics perform a function, corrective, therapeutic and educational in character, and always seek the cooperation of the local physician, when available. The follow-up work which is carried on with the patient or relatives, is very important, often essential, if results are to be obtained.

Psychiatry is a rather new specialty in medicine, and trained men are scarce. So many localities have little or no opportunity to use them. To make trained men available the students of the School of Medicine are given twice the time formerly utilized for presentation of this subject.

It is anticipated that during the coming year fellowships in psychiatry will be awarded by the Commonwealth Fund of New York. If they are awarded, two or more will probably be assigned to this institution. This movement will be part of the program in the field of mental hygiene, and will in future years help to fill the demand for trained psychiatrists who are at present lacking in numbers.

The new 1927 law for the mental examination and observation of criminals has apparently operated with success. Eleven cases have been held under observation to date in the institution, and three of this number were considered as insane. This should afford a means for the county authorities to determine the question of sanity of accused persons by disinterested, competent experts under favorable conditions.

Attention is again called to the specimens to be seen in the Museum of Neuropathology. During the past year several very interesting specimens have been added to the collection. These specimens alone are worth the effort made to see them, but while there a visit in addition through the institution fully repays any physician for the time expended.

E. R. MUGRAGE.

WOMAN'S AUXILIARY NOTES

The Woman's Auxiliary of the Denver City and County Medical Society met in annual session yesterday, and elected the following officers:

Mrs. T. Michell Burns, president; Dr. Sara C. Wilcox, first vice president; Mrs. Harry Brown, second vice president; Mrs. C. Howard Darrow, secretary, and Mrs. Lyman Mason, treasurer. Mrs. G. P. Lingenfelter, retiring president, presided. The association now has a membership of 150.

The meeting was held in the parlors of the new home of nurses of Denver General Hospital at 250 W. Eighth avenue. After a collation of tea and salad, the members were escorted through the hospital by the nurses.

A benefit card party will be given next month by the auxiliary at the Nurses' Home, the proceeds to be used to assist in buying necessary books for the nurses' use.

BOOK REVIEWS

Fistula of the Anus and Rectum. By Charles John Drueck, M.D., F.A.C.S., Professor of Rectal Diseases, Post Graduate Hospital and Medical School, Chicago. With 66 Original Illustrations. Philadelphia: F. A. Davis Company, 1927. Price, \$3.50 net.

When we consider that very few in the medical profession ever received special instruction in the treatment of diseases affecting the rectum and anus, I am sure that we should feel very grateful to Dr. Drueck for enabling us to have such a book at hand to aid us in treating a condition as serious as rectal fistula.

Dr. Drueck has brought forth a book that should be in the office of every general practitioner of medicine and surgery. He has so clearly set forth the difficulties met with in the treatment of fistula of the anus and rectum that it will enable many who are not skilled in treating fistula, to keep from making serious mistakes, even if they do not succeed in perfecting a cure.

He who is fortunate enough to have this valuable book at hand, to consult, when confronted with rectal abscess or fistula will gain a vast knowledge in the art of preventing and curing fistula, regardless of the possibility that he has never before been called upon even to examine a rectum.

ATWATER DOUGLASS.

Surgical Diseases of the Gall-Bladder, Liver and Pancreas and Their Treatment. By Moses Behrend, A.M., M.D., F.A.C.S., Attending Surgeon to the Jewish and Mt. Sinai and Northern Liberties Hospitals; Consulting Surgeon to the Hebrew Orphans' Home, the Jewish Maternity Hospital, and Jewish Seaside Home, Atlantic City; Instructor in Anatomy in the Jefferson Medical College. With Numerous Illustrations, Some in Colors, Including Many Full Page Plates. Philadelphia: F. A. Davis Company, 1927. Price, \$4.00 net.

The surgery of the gall-bladder, liver and pancreas has grown immensely in the last quarter of a century. The coordinated experience of surgeons embraces thousands upon thousands of cases. It is time, therefore, we had come to some settled views about measures and methods. This book of Behrend's will do much to promote uniformity. It is a book by a clinician. It deals with no theories about the function of the gall-bladder. It is limited to the presentation of established facts. So far as the author is concerned the old debate about draining or removing the gall-bladder is at an end. Every diseased gall-bladder should be removed. The reservation that inferior surgeons might make use of the easier operation of drainage is needless. No surgeon considers himself inferior. Humility and surgery are rarely associated.

The book is illustrated generously and excellently. The chapter on the anatomy of the biliary ducts and bloodvessels is especially illuminating. The statement that every case of jaundice should be operated upon as quickly as possible shows surgical enthusiasm. But in the main the book is well tempered and the judgment of the author is sound.

C. S. ELDER.

Teacher: "Johnny, if you had six apples and I asked you for three, how many would you have left?"

Johnny: "Six."

NEW BOOKS

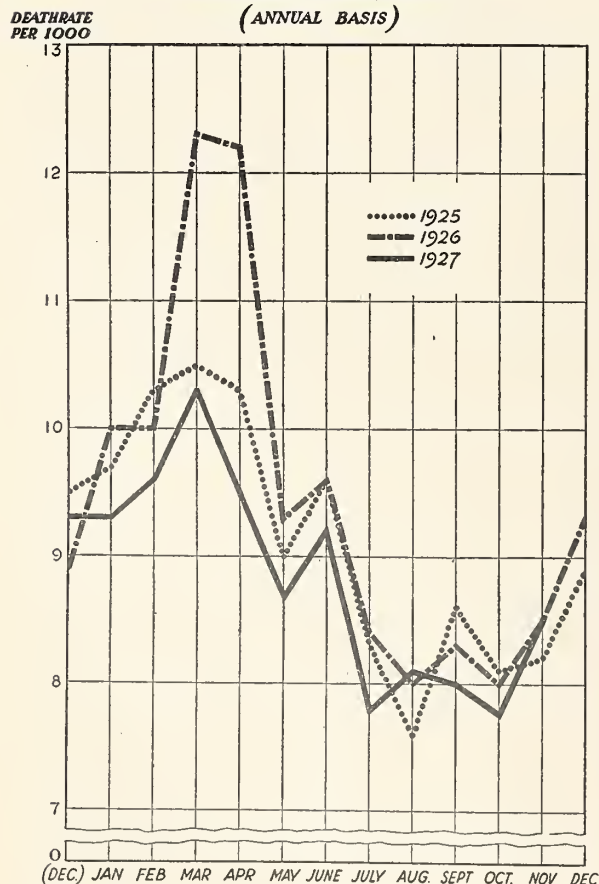
An Introductory Course in Ophthalmic Optics: By Alfred Cowan, M.D., Assistant Professor of Ophthalmology, in the Graduate School of Medicine, University of Pennsylvania. With 121 illustrations, Many in Colors. Philadelphia: F. A. Davis Company, Publishers, 1927. Price, \$3.50.

Nasal Neurology, Headaches and Eye Disorders: By Greenfield Sluder, M.D., F.A.C.S. Clinical Professor and Director of the Department of Oto-Laryngology, Washington University School of Medicine, St. Louis. With 167 illustrations, including 2 color plates. St. Louis: The C. V. Mosby Company, 1927.

Diseases of the Skin: By Henry H. Hazen, A.M., M.D. Professor of Dermatology in the Medical Department of Georgetown University; Professor of Dermatology in the Medical Department of Howard University. Third Edition. Two hundred forty-eight illustrations, including two color plates. St. Louis: The C. V. Mosby Company, 1927.

Deathrates from All Causes

METROPOLITAN LIFE INSURANCE CO.
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)



1925	9.7	10.3	10.5	10.3	9.0	9.6	8.3	7.6	8.6	8.1	8.2	8.9
1926	10.0	10.0	12.3	12.2	9.3	9.6	8.4	8.0	8.3	8.0	8.5	9.3
1927	9.3	9.6	10.3	9.5	8.7	9.2	7.8	8.1	8.0	7.7	8.5	

Nineteen Twenty-seven Will Be a Record Health Year

Even before the close of the year 1927 and before the exact death-rates can be known, it is possible to announce that there will be three outstanding items in the mortality record of the year. Two of them are definitely favorable; one is unfavorable.

Most important of all is the certainty that the general death-rate (that is, the mortality from all causes combined) in the industrial population of the United States and Canada, for 1927, will be the lowest ever reported. The most important factor in bringing this about was the approximate halving of the mortality from influenza as compared with last year, with an accompanying decline in the pneumonia death-rate.

Of almost as much importance is the fact that the death-rate from tuberculosis will reach a new low point in 1927. There will be shown a very decided gain over the former minimum, established in 1925, and the death-rate will fall to a point which would have been called visionary if anyone had ventured to predict it even a decade ago. In 1911, when the Metropolitan Life Insurance Company began to keep statistical records of the mortality among its industrial policyholders, according to individual causes of death, the tuberculosis death-rate was 224.6 per 100,000 persons insured. The indications are that the rate for 1927 will be not much in excess of 90. If that figure is attained we shall have a 60 per cent decline within a period of 17 years, one-half of which has been recorded within the present decade. If comparisons are restricted to white persons the decline is even more impressive.

But while the year will register a remarkable record from the standpoint of public health, it will show no progress in public safety. All fatal accidents, considered as a group, will show a death-rate which will not differ much from that for last year or, for that matter, from any of the four years immediately preceding; but there have been more accidental drownings this year, and still another rise will be in evidence in the death-rate for automobile accidents. For the last named item the year-to-year record grows worse and worse. There will also be a considerable increase in the suicide death-rate in 1927 and a small rise in that for homicides.

All of these items are based on the cumulative death-rates of more than eighteen million Industrial policyholders of the Metropolitan Life Insurance Company, calculated up to December 3rd. —Statistical Bulletin.

Sixty Years of Antisepsis

It was but sixty years ago on Dec. 12, that Joseph Lister, celebrated British surgeon, proved that stitch abscesses could be avoided by using sterile sutures. It was also in 1867 that Lister published his first paper on antiseptic surgery, following his success in the use of sterilized sponges and instruments and the application of dressings saturated with an antiseptic to cuts and wounds.

In order that students of hygiene, biology and allied sciences may have these facts brought to mind the American Association of Medical Progress has sent a memorandum giving the important facts to all teachers of these subjects.—Health News.

Annie Figures Things Out

Asinine Annie opines that "bacteria" must be the rear entrance of "cafeteria."—Yellow Crab.

WYOMING MEDICINE

President, A. P. Kimball, M.D., Casper	First Vice President, J. L. Linn, M.D., Lander
Secretary, Earl Whedon, M.D., Sheridan	Treasurer, Evald Olson, M.D., Lovell
Delegate to the A. M. A., Geo. P. Johnston, M.D., Cheyenne	Alternate, Galen A. Fox, M.D., Cheyenne
Member of Medical Defense, Earl Whedon, M.D., Sheridan	George L. Strader, M.D., Cheyenne
Fred Horton, M.D., New Castle	

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

THE COUNTY AND STATE SOCIETIES

If those of us who practice medicine and surgery in the state of Wyoming could look back upon the past, since Wyoming first became settled with the white man, how unreal the experiences of the pioneer medical man would seem to us today. Riding horse-back, with saddle bags strapped to his saddle, containing his instruments of torture and his potions for alleviation, he braved the severest storms that blew over this sparsely settled country carrying on that service to humanity to which we all have dedicated our lives to.

Taking care of every patient without the benefits of a hospital or of proper diagnostic equipment, what a test it must have been! ALL HONOR TO THOSE MEN! To us today, with our fine hospitals, wonderful x-ray equipment and every diagnostic aid necessary, how much we have to be thankful for. An automobile to make our calls with. Trained nurses at every hand to aid us in relieving the sick and injured, and to take care of them while we take care of others not so acutely ill. What an aid indeed!

This is an era of progress, and we are correct and right in striving as individuals in doing everything within our power to fit ourselves for the work tomorrow; yet, I believe we selfishly abide in ourselves too much and figure that George is a good fellow and, "Let him do it." It is so easy to rest contented with the latest medical or surgical journal in our hands and with our feet perched up on the mahogany and think, "That is the life, and I am doing my duty by myself and by my fellowman." And yet

the parade is constantly going by your window. Why are you not in the parade?

We all look back with just pride and with gratification at the deeds of our pioneer practitioner, yet how many of us are doing our part in maintaining that high ideal, that he unquestionably must have had in order to have carried on as he did.

Are we, surrounded as we are, by all the modern equipment that is necessary, making the progress that he made with his crude instruments and drugs? Are we trying to raise the level of the practice of medicine in Wyoming? Are we giving aid to our fellow-practitioners whenever we can? Are we asking for aid when we need it? Are we attending our local Medical Society and mingling with our competitors and doing what we can to raise the standing of the practice in our own community? Are we responding to the pleadings of our state secretary for aid in keeping up our part of Colorado Medimine? Are we overlooking the personal things of life, and especially, "Our Own Importance," and doing everything we can to help build up your State in our own state?

It is unnecessary for me to tell you that your local society is the backbone of your State Association, and that by building that integral part and building it well, so will you build a bigger and better State Society. It is necessary, however, that you attend the meetings of your local Society, take an active part in them, widen the horizon of most local societies so that you build bigger and better artists in our profession and that you respond with quickness and with dispatch to the requirements of your state secretary,

so that he in turn can take care of our part of Colorado Medicine. None of you doubt but that he can put it over, so let's get behind him to the man and help, and you will be surprised at the result yourself.

In appointing you men to the posts that you were appointed I did not make any mistake as to your ability. I made a mistake as to your willingness, so be willing to aid your state editor in his work.

With reference to those members of our State Society who do not belong to a local society, join your nearest society and help yourself over, as well as the local County and Wyoming State Medical Society.

If you all knew what your program committee knows at this time as to the wonderful meeting we are going to have in the park this year, I am sure that there wouldn't be anything but the heartiest praise for our State Society. So, let's all work for a bigger and a better Wyoming State Society, which can be accomplished with very little aid from you, but aid when needed.

A. P. KIMBALL, President,
Wyoming State Medical Society.

HEALTH AND POLITICS

Secretary Hassed of the State Board of Health has called a meeting in Cheyenne of all of the county health officers of the state. It is understood that the health officers are planning to form a state association. This is a move in the right direction, if it does not become a political machine, but it is starting out with a bad handicap in as much as everyone of the officers belong to one political party—a condition which has never existed before, and if there is any part of the state administration which should be kept out of politics, the Health Department is that one that should be free. The idea of rewarding political activity by appointment as a health officer is nauseating in the extreme, and it is doubtful if the plain citizens of Wyoming will stomach it.

E. W.

NEWS ITEMS

Dr. W. W. Horsley of Lovell, Wyo., former secretary of the Northwestern Wyoming Medical Society, recently had a very narrow escape in a serious automobile accident. Dr. Horsley is coming out of the wreck in good shape and his many friends are thankful that his life was spared.

The staff of the Sheridan County Memorial Hospital is holding regular meetings and doing everything possible to raise the standard to comply with that demanded by the American College of Surgeons.

Cerebro-spinal meningitis is the cause of closing the schools and all public meetings in Lovell. At this writing there are twenty-eight cases reported.

Dr. Orville C. Reed, formerly of Lexington, Neb., and a member of the Nebraska State Medical Society, who is now located at Torrington, Wyo., has applied for the Wyoming State Medical Society.

NATRONA COUNTY

The Natrona County Medical Society elected the following officers for the coming year:

President, Dr. George Smith.

Vice president, Dr. R. L. Reeves.

Secretary-treasurer, Dr. H. L. Harvey.

Delegates, Drs. W. W. Yates, H. L. Harvey, George Smith.

Alternates, Drs. J. R. Hansard, W. O. McDermott, R. L. Reeves.

The Natrona County Medical Society in conjunction with the Natrona County Dental Society held a very enjoyable dinner-dance recently at the Casper Country Club house. A most enjoyable evening was had by all present and many expressed a wish that many of these get-together meetings be held in the future.

FREMONT COUNTY

The Fremont County Medical Society elected the following officers for the year 1928:

President, Dr. A. B. Tonkin, Riverton.

Vice president, Dr. L. H. Wilmoth, Hudson.

Secretary, Dr. J. L. Linn, Lander.

Dr. J. F. Replogle of Lander has recently been enjoying a painless tonsil operation. It is reported that he says, "There's no such animal."

Mrs. J. L. Linn, wife of the secretary of the Fremont County Medical Society, who has been ill for some time, is very much better. Mrs. Linn has always taken a very active part in the Women's Auxiliary of the Wyoming State Medical Society. At the last meeting of the State Society at Casper, Mrs. Linn drove alone over 200 miles to attend that meeting. To the women of the East this would be an unheard of thing, and only people who are acquainted with road conditions in Wyoming can really appreciate what this really means.

The meningitis situation on the Arapahoe Indian reservation has been controlled, which certainly reflects credit on the men who handled it.

Black: "Fool! What am you hittin' yoh head with dat hammer for?"

Blue: "Cause mebbe it will swell up and keep this hat from falling down over my eyes."—Rutgers Chanticleer.

It is reported that the hookworm disease has been practically eradicated by the Rockefeller foundation. It's the oily bird that gets the hookworm, you see.—San Diego Union.

TUNING IN

LISTER'S DISTRIBUTORS

In this issue appears a two-page colored insert of Lister Bros., Inc., of New York City. For the convenience of readers, a list of their distributors in the field covered by this Journal is herewith given:

Colorado

Brush, Colorado.
Grauel Drug Store.
Colorado Springs, Colorado.
The Musick Drug Co.
Robinson Drug Company.
The Seldomridge Grain Co.
Delta, Colorado.
The Harding-Raber Drug Co.
Pure Food Grocery.
Denver, Colorado.
The Colorado Sanitarium Food Co.
The Daniels' & Fisher Stores Co.
Fort Collins, Colorado.
The A. W. Scott Drug Co.
Grand Junction, Colorado.
Beyrer & Wohlfort, Druggist.
La Junta, Colorado.
McCreery-Gavagan Drug Co.
Otis, Colorado.
Tecker Pharmacy.
Portland, Colorado.
The Portland Pharmacy.
Pueblo, Colorado.
The Palace Drug Store.
Sterling, Colorado.
Sherwood Pharmacy, 119 No. 3rd St.
Walsenburg, Colorado.
Huerfano Drug Co.

Wyoming

Casper, Wyoming.
Casper Pharmacy.
Cheyenne, Wyoming.
A. E. Roedel, Druggist.
Devine Grocery & Market.
Greybull, Wyoming.
Fisk Pharmacy, Inc.
Sheridan, Wyoming.
Economy Drug Co.
Edelman Drug Co.

Health Strides in Idaho

Reports from schools and health agencies during the past year reveal the greatest strides yet made toward the establishment of the complete school health program in Idaho. They show that physical and dental examinations have been given to thousands of children through the co-operation of doctors and dentists; dental equipment has been purchased in several centers, and plans are under way for an extension of the service to rural schools; ten counties have the services of county nurses, and three more counties probably will have budgets ready this fall. Last year at this time there were only three county nurses on the job in Idaho. There will be, in addition, nine school nurses this fall when school opens. Milk campaigns for the underweight children are becoming fixtures in the schools. Hot lunches for those who must eat their noon meal at school are receiving more consideration. Health habit training in the elementary schools has never been more thoroughly instituted in Idaho.

TOMORROW MORNING

Bring your car here tomorrow morning. Leave it. We will drive you to work. Your car will be handsomely permanized and ready for you by 5:30.

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World Health in 1927

Throughout the world health conditions were better during the year ended June 30, 1927 than for any previous year on record. This is the outstanding statement in the annual report of Surgeon General Hugh S. Cumming, of the United States Public Health Service. Its significance is emphasized in the fact that his report is for the 129th year of the Public Health Service. There is good cheer in this document for all who have promoted and taken part in the better health effort in the United States. Take that index of the efficiency of public health work—the infant mortality rate. Dr. Cumming declares the rate has been decreasing for many years, and he points to the rate for 28 states in 1926 at 72.8 deaths of infants under one year old per 1,000 of live births, as compared with 71.5 deaths for 1925. Both are extremely low—how low is apparent when it is learned that the rate was approximately 100 in every 1,000 live births in 1915.

In the United States the death rate for all causes for the calendar year 1926 in 28 states was 12.1 per 1,000 population. This was slightly higher than the rate for 1925, which was 11.7. The increase was probably caused principally by the large number of deaths from respiratory diseases. This country escaped the epidemic of influenza which swept over Europe during the winter of 1926-27; typhoid fever declined, and the case and death rates for diphtheria for the year 1926 were the lowest ever recorded. The general downward trend in diphtheria is undoubtedly the result of the use of antitoxin and toxin-antitoxin immunization. The death rate from tuberculosis continues its decline, and heart disease, diabetes, and nephritis, which had been increasing in recent years, showed lower rates than were expected.—The Red Cross Courier.

Ten Commandments of Good Posture

Health as well as beauty lies in correct carriage, and many disorders of the human body are due in whole or in part to poor posture, declares Dr. Philip Lewin in the January Hygeia.

Poor posture is in many cases a result of habit. To remedy this defect, which may lead to actual disease, Dr. Lewin lists the following ten commandments:

1. Stand tall.
2. Sit tall.
3. Walk tall and chesty with weight transmitted to balls of feet.
4. Draw in abdomen, pulling it backward and upward.
5. Keep shoulders high and square.
6. Pull chin straight backward toward collar button.
7. Flatten hollow of back by rolling pelvis downward and backward.
7. Separate shoulders from hips as far as possible.
9. Lie tall and flat.
10. Think tall.—Hygeia.

I do the very best I know how—the very best I can; and I mean to keep doing so until the end. If the end brings me out all right, what is said against me won't amount to anything. If the end brings me out wrong, ten angels swearing that I was right would make no difference.—Abraham Lincoln.

Teacher: "George, how often do you bathe?"
Honest lad: "Summer or winter time?"

Mellin's Food-A Milk Modifier

Mellin's Food fills a very important place in the modification of milk, for it not only materially assists in the digestion of cow's milk, but adds certain elements that favor a better balanced diet, resulting in a modification more in keeping with the actual nutritive requirements of the infant.

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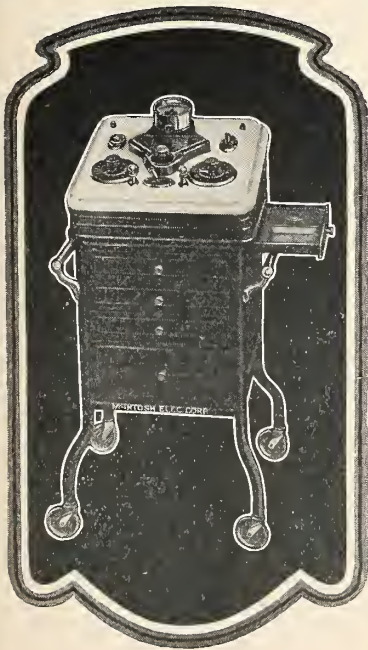
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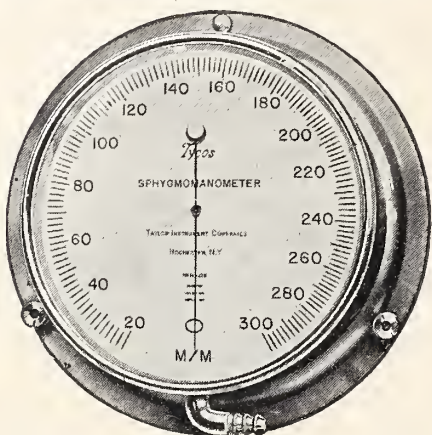
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New York Crime Commission Hearing

The psychiatrist had his day in court at a public hearing of the New York State Crime Commission held on Nov. 20 in the Bar Association Building in New York. The hearing was held to consider the psychiatric point of view of the crime problem. Among the speakers were Dr. Raymond F. C. Kieb, Commissioner of Corrections; Dr. Amos T. Baker, Director of the Psychiatric Clinic at Sing Sing Prison; Dr. Joseph W. Moore, Acting Superintendent of the Matteawan State Hospital for the Criminally Insane; Dr. C. Floyd Haviland, former Commissioner of Mental Hygiene; Dr. Walter N. Thayer, Superintendent of the State Institution for Defective Delinquents at Napanoch; Dr. Frank L. Christian, Superintendent of the State Reformatory at Elmira; Dr. George W. Kirchwey, former Warden of Sing Sing Prison; Dr. Sylvester R. Leahy and Dr. Edward E. Hicks.

The "psychopath" was singled out as the greatest trouble maker of society. Neither insane nor feeble-minded, this individual is yet distinctly psychopathological, and of a type of personality make-up concerning which the psychiatrist can often make predictions as to crime, delinquency or other abnormal behavior. The opinion was unanimous that the criminal psychopath should be committed to a separate institution and not released unless and until a thorough psychiatric examination showed there would be no danger to the community in such action. It was also suggested that all defendants claiming irresponsibility for their criminal acts on the grounds of "insanity" be sent to the Matteawan State Hospital for a period of observation and study—Mental Hygiene Bulletin.

Conference Considers Means to Check Sale of Venereal Disease Nostrums

A survey made by the American Social Hygiene Association in a selected city district having shown the need for official organized activity against the sale of venereal disease nostrums, a meeting was recently called by Dr. Louis I. Harris, commissioner of health of New York City to consider the problem. Representatives of state and county medical and pharmaceutical societies and official and voluntary health workers attended.

Dr. Albert Pfeiffer, director of the Division of Social Hygiene was present as the representative of the State Department of Health and addressed the conference on his experiences in getting druggists upstate and in Massachusetts to cooperate with the state health departments by giving up the sale of obnoxious preparations. The conference voted unanimously in favor of the suppression of proprietary preparations for the self-treatment of venereal diseases and a committee was named by Commissioner Harris to formulate a plan of action.—New York Health News.

They Know Their Eggs

It has been observed by airmen who make regular flights over arid regions that migratory birds have learned to use the airplane as a means of transportation and that often from a dozen to twenty birds will make the trip on one plane.—Dearborn Independent.

The brute drove his young wife to distraction. His curt replies to her queries were most insulting. Unable to stand it any longer, she gathered her valuables, liberty bonds, and preferred stocks, and shrieked, "What have we in common?"—M. I. T. Voo Doo.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

PERIODIC EXAMINATIONS

For many years much has been said regarding the merits of detecting disease signs before tissue and function changes have progressed to the symptom stage. Sir James Mackenzie voiced the best mind of the modern profession when he contended that the highest aim of medicine is to prevent disease. This of course is impossible in any way approaching the maximum, if the practice remains individualistic and each individual practitioner thinks and acts only in terms of relief and cure. It has been some such consideration as this that has inspired the American Medical Association to launch a definite program to interest and aid individual physicians in making periodic examinations of the apparently healthy. In some parts of the country, we understand, results have been most gratifying; in Colorado, however, the movement has scarcely broken the horizon. Like many others, this is a movement which, as yet, has failed to move. In spite of a few barely tenable objections, it is almost unthinkable that its merits have not commended it to all well informed doctors. Likewise, through the efforts of many agencies, the public is already prepared to cooperate. Yet it fails to get under way with scarcely a reason save the dead weight of inertia or the mere failure to make a beginning.

The State Society has been making some commendable gestures. It has faithfully set up committees but buried their good resolutions among its archives. It has likewise

provided every member with a Manual on Periodic Examinations, but has failed to be the mentor for its use. It has generously furnished the letter but niggardly withheld the spirit. For it to make repeated, insistent and personal appeals to all members, under our present unbusinesslike system of voluntary management, is quite impossible. Even with this handicap something worth while might be accomplished if, at the state meeting, this movement were given time and space on the program commensurate with its avowed importance. This we are assured is now being planned.

County societies, in their efforts to provide helpful programs, could and should give an entire evening to this important matter at once. In some states, societies have aided their members by public propaganda. Others have provided mailing matter to accompany physicians' statements, setting forth the society's position on such examinations and the reasons therefor. Still others have cooperated in sending congratulatory notes to patients of their members who have had such examinations. A wealth of suggestions could be had by any local society merely by writing Dr. J. M. Dodson of the American Medical Association.

On the following page we are presenting a suggestion of the committee of the State Society on Periodic Examinations. To some this page may serve only as a reminder. To others it may suggest an office card of similar nature, but of the individual's own choosing. To still others it might seem fitting that it be clipped and framed as is. In

"The Highest Aim of Medicine Is to Prevent Disease"

Sir James MacKenzie

*In accordance with the policy of the American
Medical Association and the Colorado State
Medical Society this office advocates periodic
examination of the apparently healthy.*

Signed _____ *M.D.*

any case it would doubtless be more valuable to patients and quite as ethical as the usual wall hangings which convey information touching such matters as alma mater, society membership and fee schedule. If this suggestion is acted upon generally, without violation to our inherent modesty or expense to our organization, we will inform many people of Colorado of our position. This in itself will be a beginning. Other more positive efforts on the part of the state and county societies and ere long we will be in line with this national movement for the prevention of disease.

THE GOITER CONFERENCE

The American Association for the Study of Goiter will hold its next annual conference in Denver, June 18-29, 1928. This society is composed of outstanding students and practitioners who are particularly interested in the advancement of knowledge pertaining to the prevention and cure of goiter. Heretofore at these meetings the Society has not only been able to provide a program consisting of American authorities in this field of medicine, but has almost always been honored by the presence and participation of distinguished foreign guests. In this respect we are informed that the Denver conference is to be no exception. President Gordon S. Fahrni of Winnipeg and his associates on the committee on scientific program are planning an agenda of unusual interest.

The three-day conference will embrace diagnostic and operative clinics held each morning at the various hospitals of the city. The diagnostic clinic will be conducted solely by attending members of the Society or its distinguished guests. The afternoons will be devoted entirely to scientific papers and discussions relative to some phase of goiter.

The Association will be the guest of the Denver City and County Medical Society. Being host in this case, however, means more than entertainment. It is hoped that it may mean that members of the local Society will attempt to find and guide a wide range of

clinical goiter material to these morning sessions, local arrangements for which will be announced later.

In Colorado the goiter problem is ever present. The average physician of the state is probably as well able to advise the goiter patient as the average physician of any other state. Several physicians in the various cities of Colorado, by virtue of locality and special study, are the equals of leaders in other sections. But the best established prophylaxis and cure are not as widely and thoroughly known here or anywhere as is desirable. This assembly brings into our state, representatives of outstanding goiter clinics and independent workers who will be able to give us, without expense of travel, the most dependable and up-to-date information available. It will be profitable to make plans now to attend these June clinics and conferences.

EARLY DIAGNOSIS CAMPAIGN

An undertaking probably destined to become a landmark in the field of public health is the early diagnosis campaign which will be conducted on a nation-wide basis during the month of March by the National Tuberculosis Association. In Colorado the Colorado Tuberculosis Association, affiliated with the national organization, will conduct the campaign, which will be carried on through publicity.

"Let Your Doctor Decide" will be the keynote of the campaign, and the four symptoms by which the public will be asked to judge whether or not they should visit a doctor are, Too Easily Tired, Loss of Weight, Indigestion and Cough That Hangs On.

Chairmen are being secured all over the state for the purpose of distributing the posters. Clubs and lodges will distribute the leaflets at their March meetings. A medical film for physicians, "The Doctor Decides," will be shown before some of the county medical societies, and a film for laymen will also be shown in many parts of the state. Leaflets for pay envelopes of employees in various industries will carry the message to hundreds. Billboards and posters will flash

the idea from one end of the state to the other.

The National Tuberculosis Association is undertaking the campaign with two primary objects in view; first, to focus attention of the public upon the danger signs of early tuberculosis, and urge them to go to their doctors for an examination; and second, to stimulate renewed interest on the part of the medical profession in the recognition of early signs of tuberculosis.

JOHN HUNTER

The Denver Clinical and Pathological Society held its annual mid-winter meeting and banquet at the Brown Palace Hotel, Feb. 14, 1928. The members of the Society and an equal number of invited guests had the honor of listening to an unusual address delivered by Dr. Francis D. Packard, Editor of the *Annals of Medical History of Philadelphia*. The subject of his discourse was very appropriately "John Hunter," as the birth of this picturesque and pioneer character in medicine occurred Feb. 14, 1728. The profound knowledge and simplicity of style of the speaker gave a charm and value not often equaled. The immortal Hunter—the brusque, straight forward, industrious, dominant personality of medicine of his time—was lifted from the obscurity of the past to stand again in the white light of the present, in bold relief among the masters of medicine of all times.

The meeting was fittingly opened by a charming rendition of two musical numbers, the first of which was "My Mother Bids Me Bind My Hair," and the second, "Robin Adair." The words of the first were written by Mrs. John Hunter, the music having been composed by Francis Joseph Haydn. The latter is a Scotch ballad to the memory of Robert Adair, once surgeon general of the British army and general inspector of hospitals, through whose good offices young Hunter was spared the stress of his arduous duties of anatomy, threatening his health, to become attached for a time to the medical service of the army.

These mid-winter meetings have attracted

considerable attention for several years past. The Pathological Society is rendering a real service to medicine within the state by capitalizing these period events where medical history and medical biography are extremely timely. For example, the address of Dr. Gerald B. Webb before that organization two years ago on the subject "Laennec" still lives as a classic inspiration in the memory of those who were fortunate enough to attend the meeting. Perchance this penchant for medical history in an organization of limited membership may develop beyond its bounds into a general enthusiasm for its further pursuit. From this nidus of interest the whole profession may thus be leavened.

"WHY MEN FAIL"*

The hopeless attitude of this author is astounding at this stage of psychiatric advance. His folly lies in seeing but one side of the reaction. To any thinking individual two components are necessary to any human activity—an individual *and* his environment. There is no reason to doubt that the forthcoming activity is inevitable with that individual and that environment. But to lay the entire stress upon one component or the other neglects the fundamental idea underlying the concept that a reaction occurs. Either component is as essential as the other. With a different individual *or* a different environment a different reaction *must* take place.

To be sure, that a man has failed is an inevitable thing after it has become part of an historic past. Prior to that time, however, an infinity of alterations are possible both in the individual and the environment. Unfortunately, we are not able to alter the heredity of any person, but a kind nature provides a means for altering the constitution from that of pure heredity. Every experience of life modifies the individual to some extent and modifies his next experience accordingly. This person today is not identical with himself yesterday nor tomorrow.

*A voluntary contribution in answer to an editorial of last month bearing the same title. Another reply appears on page 98 of this number. Thus endeth anew a presentation of some of the reasons for belief in the age-old doctrines of free will and foreordination.—Ed.

The capacity of an individual is probably a fixed characteristic. But consider how few of us ever attain the limits of our capacities! Only those with very limited potential are doomed to succumb on this score. Even an extremely unintelligent person may fulfill a successful niche in life. I am reminded of a low grade moron who was able to earn sufficient money to support a large family, but lacked the ability to disburse the funds intelligently. When this latter function was taken over by a charitable organization the family could not only survive, but could save and pay for the children's training in schools. The author frequently speaks of morons. Surely the person with normal average capacity is more interesting and important for consideration. Others than morons fail.

Our means of altering constitution are limited, but the environment is an extremely flexible thing. That psychiatrists have laid stress upon the latter is due to this very fact. But they have not neglected to remember the individual with his constitution and its heredity. Taking this all into account we can formulate an equation that is not complete until every factor is represented and gives a different result with the alteration of any factor. The environment, being the most flexible of all, is most readily and radically changed. Often enough a slight modification is sufficient to change the reaction from misery to happiness—from failure to success.

What of ancient and modern Greece? Is the environment still the same? That, indeed, is a bold assertion. Truly the heredity has something to do with it, but the failure to produce an Herodotus is also closely linked with the altered political and social world of today. Whatever the cause of failure may be, one becomes convinced that no one factor determines it and that changing the factors that can be altered must inevitably change the result. The schools and mental hygiene clinics, yes, and the professional evangelist also in some instances, have examples to offer this skeptic author that would no doubt astound him—results in the form of happiness and success where misery and failure were before. A moron may still be a moron, but there is a vast difference between a moron trained to carry out a simple function in

industry and one left to develop along any delinquent or social lines that lie in his path. To quote from last month's editorial, "—and the less we try to improve on the works of the Almighty, the sooner we'll solve many a social problem, including the one, 'Why men fail.' " Consider for a moment the process of acquiring immunity to smallpox. By the simple vaccination the constitution has become so modified as to render it resistant to that dread disease whereas before it was susceptible.

The problem is not to be solved by calling upon God, the fates, heredity, or any other thing, but simply by frankly facing the facts as they are and using the means at hand to improve the situation.

UNIVERSITY CLINICS

Special attention is called to the annual clinics of the Medical Department of the University, March 21-24, announcement of which occurs on page 97.

Freedom

Freedom is not something you can pick up from the street corner or possess because you chance to claim it. Nor is freedom obtainable by the negative process of breaking through restraints and jumping fences. Freedom is a positive spiritual achievement.

Indeed, one may go farther; freedom is the goal which the whole creative process has been striving after. Matter is not free; it runs in pre-determined courses. Planets are not free. They return upon their invariable orbits and centuries ahead their exact positions are accurately predictable. But just as soon as life begins, something like freedom comes in, creating a margin of uncertainty and possibility so that you cannot tell what a living thing will do. And when at last man comes, with his capacity to look before and after and use his memory to shape his future, with his magnificent power of projecting purposes years ahead and working for them, there in that margin of liberty lies the supreme achievement of creation.

There is nothing nobler on earth than a man taking charge of his own life.

When, therefore, a youth says that he proposes to be independent, who would gainsay him? For this cause came he into the world, that he might take charge of his own life. But it is a serious enterprise; it is not to be entered unadvisedly or lightly, but reverently, advisedly, discreetly, soberly, and in the fear of God. To take charge of your own life and to be free means the intelligent substitution of inward self-control and self-direction for outward restraint, and that is a great achievement.—"The Meaning of Freedom," Harry Emerson Fosdick.

POSTMORTEM STUDIES OF INTRACRANIAL, SPINAL AND PULMONARY LESIONS IN THE STILLBORN AND NEWBORN, AND THEIR SIGNIFICANCE FOR THE OBSTETRICIAN*

WILLIAM C. JOHNSON, M.D.

From the Department of Pathology, University of Colorado, and the Departments of Pathology and Obstetrics and Gynecology, Columbia University.

DENVER

In most institutions where autopsies are performed on still-born infants, or those dying shortly after birth, such investigations are usually assigned to the youngest and least experienced member of the pathological staff. The examinations are generally superficial and incomplete, and are conducted without a realization of the great differences in normal as well as pathologic anatomy and histology between the newborn and adults. The pathology of the newborn is a distinct specialty, and so far but few pathologists have paid much attention to it. As a result of this neglect, some of the most important causes of fetal and neonatal death have remained obscure until very recent years, and a number of misconceptions have become established. Some of these may be briefly mentioned.

The impression has become widely spread that hypertrophy of the thymus is an important lesion and common cause of death in the newborn. This is based on ignorance of the fact that the thymus is normally a very large organ at birth, and continues to increase in size up to the time of puberty. Further support has been given to this delusion by erroneous interpretations of X-ray shadows of the large normal thymus. While a pathological enlargement of the thymus may occur it is relatively uncommon.

Atelectasis is a condition frequently found in the lungs of the newborn, and the term has been frequently used as if it referred to a primary disease, whereas it is always secondary to some cause, frequently obstruction of bronchi by exudate or aspirated substances.

Congenital syphilis, commonly supposed to be such an important cause of stillbirths and neonatal deaths, has in our series been of quite minor importance.

Still other misconceptions will be referred

to in connection with the lesions which I will describe.

The observations included in this paper are based on a series of about one thousand autopsies which have been performed during the past seven years by my associates and myself at the Sloane Hospital for Women in New York City. While no exact statistical study will be attempted in this paper, I will give the chief facts and conclusions in respect to the two groups of lesions which we have come to regard as the most numerous and important, namely, serious birth injuries affecting the central nervous system, and acute respiratory infections and aspiration of foreign material into the lungs.

There are other important causes of death which I will not discuss, such as prematurity, and maternal toxemia. Also congenital malformations, which are constantly responsible directly or indirectly for a fairly high share of the deaths. After careful gross and microscopic study, and consideration of the clinical histories, the percentage of unexplainable deaths is very small. In our series the first autopsies performed were done without a knowledge of the special methods which have since been developed, and in ignorance of some of the peculiar lesions of the newborn, and hence these earlier records are of much less value than the later ones. As time has gone on we have found that autopsies on infants should have just as careful and thorough study as those on adults. In some respects the examinations are regularly more complete than on adults. When such attention is paid to this generally neglected pathological material, the results of the study are found to be not merely of pathological interest, but of surprisingly great value, clinically, to the obstetrician and pediatrician.

Intracranial Birth Injuries

While the great frequency of intracranial hemorrhage has always been recognized since autopsies on babies have been performed, I

*Read before the fifty-seventh annual meeting of the Colorado State Medical Society, Glenwood Springs, Colorado, Sept. 6, 7, 8, 1927.

believe that the generally used term "cerebral hemorrhage" has been misleading to the average physician, who has supposed that this usually means a hemorrhage within the substance of the brain, comparable to the cerebral apoplexy of adults. The truth is that these hemorrhages are usually between the dura and the brain and are generally associated with a rupture of part of the dura and of vessels in the meninges. It is more accurate therefore to speak of them as intracranial subdural hemorrhages.

The amount of the hemorrhage varies from a few drops to a quantity of fluid and clotted blood sufficient to give serious pressure effects. In the majority of cases the quantity is not large enough to give trouble either from loss of blood or from pressure. The loose union of the cranial bones makes it possible for the cranial cavity to hold a considerable amount of excess fluid without harm to the brain. In but few cases are attempts to remove the blood by surgical interference justified.

The cause of death, when not due to the hemorrhage itself, is probably shock, and excessive compression of the head during delivery. The hemorrhage is merely one of the evidences that trauma has occurred.

One of the misconceptions to which I have already referred is that a large proportion of intracranial hemorrhages are due to hemorrhagic disease of the newborn. This idea is certainly pernicious, as it tends to obscure the truth that nearly all of the hemorrhages result from trauma. Prematurity is an important predisposing cause for these injuries as at that period the blood vessels and tissues generally are more fragile, and more easily damaged.

Until recent years, the customary method of opening the head and removing the brain at autopsies on infants has been to make incisions along the sutures. In this way the attachments of the falx cerebri and tentorium cerebelli were destroyed before they could be examined and the points of origin of the hemorrhages were overlooked. In 1910 Beneke¹ suggested a better method of opening the head by making two incisions parallel to the sagittal suture, separated by about an inch, and cutting down a flap of calvarium on

each side, so that a bridge, consisting of the sagittal suture, with a narrow strip of bone on either side, is left to keep the falx and tentorium intact. In this way, before the brain is removed the dura, can be examined for injuries. The most common lesion is a tear of the tentorium, extending backwards from near the middle of its free edge. The tear may be partial or complete, on one or both sides. (Fig. 1.) Since the fibres of the tentorium and falx act as stays as Holland² has pointed out, tending to prevent excessive dis-



Fig. 1. Complete tear of left half of tentorium cerebelli.

tortion of the fetal head, when compression of the head during delivery is too rapid or excessive, the fibres will rupture where the strain is greatest. After this rupture there is less resistance to excessive compression and moulding of the head. So the shock and compression of the brain are the factors chiefly responsible for death, rather than the hemorrhages from the torn dura.

The vena cerebri magna, and especially its tributaries, passing from the mid-brain, choroid plexuses, cerebellum, and adjacent structures, across to the straight sinus in the dura, are the vessels particularly apt to be injured, and the hemorrhage is therefore more abundant in this region, although it may spread out diffusely over the cerebral hemispheres, and at the base of the brain. The mechanical factors involved in these lesions have been described in detail by Holland² in his excellent monograph "On the Causation of Fetal Death." The vessels passing from



Fig. 2. Fracture of neck in breech delivery. The spinal cord is exposed through the separation between the vertebrae.

the brain to the dura are naturally subjected to stretching or kinking when the relations between the brain and dura are disturbed by excessive moulding and deforming of the head.

Another type of hemorrhage has been pointed out by Schwartz.³ Owing to the less conspicuous size of these lesions, they may easily be overlooked in a casual examination of the brain. They are hemorrhages in the substance of the brain in the region of the tributaries of the vena cerebri magna, that is in the basal ganglia and walls of the lateral ventricles. In infants surviving birth for some time these hemorrhages may give rise to foci of softening of the brain substance. In order to demonstrate them Schwartz recommends fixing the brain whole in formalin before sectioning it. The hemorrhages may be multiple and punctate, or larger, and in some cases break through into the lateral ventricles.

Schwartz's theory as to the cause of these hemorrhages is that they are due to differences in pressure between the presenting part of the head at the cervix, and the remainder under compression within the uterus. This is just like the production of a caput succedaneum, only he supposes that the pressure difference is transmitted from the surface deep into the brain, through the superior longitudinal sinus, to the straight sinus, and ultimately to the tributaries of the vena magna cerebri, so that in this territory some vessels

become overdistended with blood, and rupture.

The causes of intracranial hemorrhages may be summarized by saying that they are more frequent in prematures and in cases where there has been too rapid and forcible compression of the head, and excessive stress and distortion without gradual moulding. For these reasons they are recognized as being more common in instrumental and breech deliveries, but they also occur in spontaneous deliveries, and no doubt a considerable proportion are unavoidable.

Spinal Injuries

It may seem incredible that an autopsy could be performed on an infant and yet fail to demonstrate such an important lesion as fracture of the neck. Nevertheless it is probably true that this injury has been overlooked many times even in institutions where hundreds of post-mortems have been performed. Evidence of this lesion is seldom elicited by external examination and if the post-mortem is not carried further than examination of the body cavities, the injury to the neck will not be discovered. This accident is one of the common causes of death in breech deliveries, and seldom occurs except in breech cases.



Fig. 3. Typical location of fracture of the spine in breech delivery. There is a separation between the center of ossification of the body of the sixth cervical vertebrae and the cartilage and intervertebral disc above it. Illustration shows median longitudinal section of the spine.

The failure of many of the text books of obstetrics even to mention this injury shows how inadequate the autopsies have been. In our series, in which the neck has been invariably examined, we have noted about 20 fractures of the spine, or in about 2 per cent of all autopsies.

Four years ago a part of this series was reviewed by Pierson.⁴ At that time he found that the mortality in primary breech and version and breech deliveries was 12 per cent and that of 36 deaths in such deliveries 14 or 38 per cent showed fractured vertebrae.

In none of the early cases was it recognized at the time of delivery that the neck had been broken. External examination reveals little or nothing abnormal, on account of the natural mobility and extensibility of the neck. On exposure of the anterior surface of the spine a transverse separation is found, which is nearly always located at the same place, that is between the body of the sixth cervical vertebra, and the cartilage and intervertebral disc above it. (Fig. 2.) Technically this is a separation of the upper epiphysis of the 6th cervical vertebra rather than a fracture through bone. (Fig. 3.) There is usually considerable extravasation of blood in the adjacent muscles and fascia of the neck, and also in the spinal canal. The spinal cord has been completely torn across in some cases, while others have shown little or no gross evidence of injury.

In all but one case the baby died at birth. That one survived for three days. One case showed a fracture at two points, two were incomplete, and one was located in the third thoracic vertebra.

In Pierson's discussion of our cases he concluded that unjustified fear of fetal death from asphyxia had been causing through unnecessary haste in breech extractions a greater fetal mortality from birth injury and shock than would have resulted from asphyxia.

The frequency and appalling nature of these birth injuries in breech deliveries led Dr. W. E. Caldwell at the Sloane Hospital to a study of improvements in the technique, and the newer methods, illustrated by lantern slides and motion pictures, have been exhibited at many society meetings, and have

aroused considerable interest. While it is impossible to include the details of this method within the limits of this paper, I may refer to a personal communication from Dr. Caldwell⁵ in which he writes that the points to be emphasized are the absolute necessity of getting the cervix dilated, and the prevention of the early rupture of the membranes if possible. If the membranes do rupture early, providing that the breech is not acting as a good dilating agent, a large bag should be used. In the breech presentation the longer diameters of the child's body should be brought into the widest diameters of the pelvis, rotating in a short arc with the fingers inside the vulva. In case of impaction no pull should be exerted, but the child's body should be pushed back to relieve the impaction. Angulation should be prevented, especially at the neck.

As our autopsy material has included only stillborn and newborn, it has not been possible to study the late effects of injuries of the central nervous system such as are described in the monograph of Ford, Crothers, and Putnam.⁶

Pulmonary Lesions in the Stillborn and Newborn

While these may seem to bear little relation to the injuries described in the first part of this paper, they are included here because they make up a second great group of causes of fetal and neonatal mortality, almost equal in importance to the first, although as they generally require careful microscopic study for their detection they have generally received much less attention than the more conspicuous birth injuries.

In order to understand these lesions it is necessary to consider the relations of the fetus to the amniotic cavity and its contents.

The fetus is surrounded by the amniotic fluid, which it swallows in considerable amounts. Normally, the fluid is prevented from entering the respiratory tract in any quantity by the unexpanded condition of the lungs, by the presence of secretion in the bronchi, and possibly closure of the glottis.

Although the fetus does not ordinarily attempt to breathe in utero, the occurrence of asphyxia will stimulate its respiratory center sufficiently to cause respiratory movements.



Fig. 4. Section of sediment from amniotic fluid, showing cornified epidermal cells from the skin of the fetus.

As the lungs expand, amniotic fluid will be drawn into the bronchi and alveoli. Since it is possible to detect the amniotic fluid in the lungs by microscopic examination, its presence in considerable amounts may be taken as evidence of fetal asphyxia. One of our most interesting examples of this condition was a macerated stillborn infant which evidently died from asphyxia following the formation of a true knot in the umbilical cord. In this case the lungs showed a most extensive aspiration of amniotic fluid.

Identification of amniotic fluid in the lungs depends on finding elements from the epidermis of the fetus which have become detached, and are floating in the fluid when it is aspirated. Chief among these are cornified epidermal cells which have desquamated from the skin. (Fig. 4.) These are thin, and flattened, and are generally distinctly seen only when they are viewed on edge, when their cross sections appear as short, thick, wavy somewhat refractile threads, which undoubtedly have often been mistaken for fibrin. (Fig. 5.)

Particles of fat from vernix caseosa or even masses of that substance, consisting of fat mixed with epidermal cells, may be aspirated, and can be detected by appropriate stains for fat in frozen sections of the lungs.

If amniotic fluid and vernix caseosa are sterile, their aspiration into the lungs, even in large quantities, does not produce pneu-

monia. However, when the baby is born, and attempts to breathe, if the bronchi are sufficiently obstructed by these foreign substances, suffocation may result.

An interesting condition, which we have studied, appears to result from the aspiration of vernix caseosa a considerable time before birth, possibly during some period of transitory and incomplete fetal asphyxia. Remaining in the lungs during the rest of fetal life, the vernix caseosa undergoes a slow transformation into a homogeneous viscous material. This does no harm while it remains in the lungs, until the baby is born and commences to breathe. Then this substance causes partial or complete obstruction of some of the bronchioles, and the walls of many of them become coated with a layer of this homogeneous material which we have called "hyaline membrane of the lung."

Clinically, the babies show recurring attacks of cyanosis and difficult breathing, and death usually occurs within one or two days after birth. Nearly all of the cases have been in premature infants, possibly because the stronger full term infants are better able to overcome the obstruction to their respiration, and survive until the obstructing substances have been loosened and discharged from the bronchi.

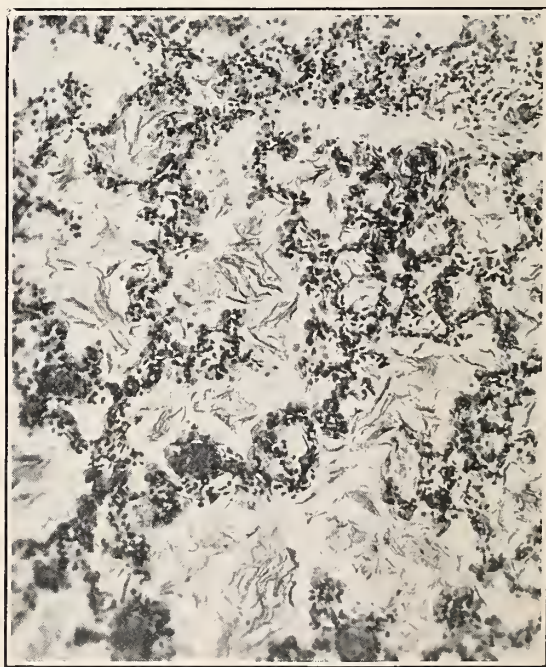


Fig. 5. Section of lung of newborn showing alveoli filled with epidermal cells, indicating aspiration of amniotic fluid.

At autopsy the lungs with the "hyaline membrane" generally show a considerable degree of atelectasis. This is no doubt due to absorption of air from alveoli whose bronchi have been obstructed. I believe that with more careful routine examination of the lungs this "hyaline membrane" would be found to be the cause of death in many autopsies in which the only lesion found is stated to be atelectasis.

Congenital Pneumonia

This condition, which has no relation to syphilitic infection, results from aspiration of infected amniotic fluid. The ordinary period—up to 1 or 2 hours—which elapses between the rupture of the membranes and the birth of the baby does not allow sufficient time for any marked bacterial contamination of the amniotic fluid. But if the membranes rupture prematurely, or if birth is much delayed, a marked bacterial invasion may extend from the vagina through the opening in the membranes throughout the amniotic cavity. Evidence of this infection, which occurs in many cases of dry labor, may be obtained by microscopic examination of the membranes and placenta. The membranes and surface of the placenta then show definite inflammatory reaction and are markedly infiltrated with leucocytes, many of which undoubtedly pass into the amniotic fluid. Of course it is recognized that when the membranes rupture not all of the fluid escapes, and the residue under certain conditions, may be aspirated.

Naturally, the presence of infection in the amniotic cavity is very dangerous to the respiratory tract of the fetus, since the latter communicates with the amniotic cavity. Any degree of asphyxia sufficient to cause respiratory movements in utero will cause the aspiration of infected fluid into the lungs, and pneumonia is apt to result. (Fig. 6.) Also if the baby is born with the infected fluid present in its nose and mouth, it may aspirate this material when it first begins to breathe.

The incidence of congenital pneumonia was shown in a series of 500 consecutive autopsies which Meyer and I¹ analyzed, to be 68 or 13.6 per cent. These infections, arising before or at birth, were much more numer-



Fig. 6. Section of lung of newborn with congenital pneumonia. The alveoli are filled with leucocytes mixed with epidermal cells from amniotic fluid. The pneumonia is due to bacterial infection carried into the lung by the aspirated amniotic fluid.

ous than all the cases of pneumonia occurring during the remainder of the first month of life, which numbered 29. Of the 68 cases of congenital pneumonia 30 were born dead, and 38 survived birth a short time, dying within four days. In comparing the time of death with the number of "dry hours," that is, the length of the period between rupture of the membranes and delivery, it is noted that the longer the dry labor, the greater is the chance that the fetal lungs may become infected, and the baby may die with pneumonia before it is delivered. On the other hand if the time after rupture of the membrane is shorter, the baby, if infected, has a better chance of surviving birth, although it is apt to die within three days.

The figures which I have given indicating the frequency of congenital pneumonia must not be taken to indicate that all cases of dry labor result in infection of the fetal lungs. Unless there is aspiration of the contaminated fluid, infants may be delivered from badly infected amniotic cavities without any sign of pneumonia.

Pathologically, the diagnosis of congenital pneumonia can generally be made only by microscopic examination. Grossly, the lungs are rarely consolidated, but simply appear

heavier, redder, and more moist than normal. Microscopically there is an exudate of polymorphonuclear leucocytes in the alveoli, either diffusely distributed throughout the lung, or in patchy areas. Evidences of the aspiration of amniotic fluid are also usually present, as indicated by epidermal cells.

In considering the way in which infection reaches the amniotic cavity and the fetal lungs we have in practically all cases rejected all routes except the direct one from the vagina through the torn membranes into the amniotic cavity. The bacteria present appear to be the ordinary flora of the vagina and are usually of low virulence. The pneumococcus has not been found in any of our cases.

Strong support of the theory that the infection is a direct one from the vagina rather than a roundabout one such as through the maternal blood stream and placental circulation has been furnished by two cases of twin pregnancy. In each of these the amniotic cavity first opened became infected and inflamed, and the first born of each pair of twins died with pneumonia, while the second born whose amniotic cavities had been open for a shorter time, both escaped infection. If the route of infection was through the maternal blood stream and placenta they should all have been equally exposed.

Clinically the importance of infection of the amniotic sac and inflammation of the membranes has not been recognized, because it seldom results in sepsis of the mother. The membranes act as a barrier to the spread of infection into the decidua beneath, and when the placenta and membranes are delivered, most of the infected tissue is removed from the uterus. Also, since the bacteria concerned are probably those normally present in the vagina, they may be of relatively low virulence so far as the mother is concerned. For the baby, however, premature rupture of the membranes and infection of the amniotic cavity is a dangerous condition, and is frequently responsible for death, either before or shortly after delivery.

Summary

Neglect of careful autopsy studies of the stillborn and new-born, and inadequate methods of postmortem examination have allowed some of the most important causes of fetal

and neonatal death to remain obscure. Also a number of misconceptions have become established.

The so called "cerebral hemorrhage" of the newborn is in most cases a subdural intracranial hemorrhage associated with a rupture of the dura. In most cases the child does not die from the hemorrhage but from shock.

Fracture of the cervical spine is an important cause of the relatively high mortality in breech delivery.

Asphyxia of the fetus in utero causes aspiration of amniotic fluid which can be recognized in microscopic sections of the lungs.

Particles of vernix caseosa aspirated into the lungs before birth may cause suffocation of the child after it is born.

If the amniotic cavity has become infected from the vagina through premature rupture of the membranes aspiration of the infected amniotic fluid may cause death of the child from congenital pneumonia.

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DISCUSSION

T. M. Burns, Denver: I thank the doctor very much for his article, and I just want to make a few statements with reference to the clinical side of it. I believe that one of the causes of the hemorrhages and the asphyxia in these infants is the lack of vitality in the fetus, as shown by the fact that these deaths occur often in offsprings of the same mother. In other words, that a healthy child can stand a large amount of traumatism, and I believe that a number of these pathological lesions probably occur after the fetus was practically dead. In other words, it is much harder in breech cases to deliver a dead fetus than it is a live one. I deliver the head by complete extension, and I have delivered twenty-five in succession without a dead fetus. I believe that this was partially luck or a coincidence of a number of easy cases, but it shows that there can be considerable traumatism on the health child without bad results.

Philip Hillkowitz, Denver: Mr. President and Colleagues: I cannot refrain from adding a note of praise to the comments that already have been made on the work of Dr. Johnson. It certainly

has been a distinct pleasure to me to hear the paper, and I have enjoyed it immensely. But it is a pity that it has been placed on that part of the program where most of the men are rushing out to satisfy their material needs in the way of the gastroenteric side, because this is not a question of theoretical interest, but it has a great practical bearing on the general practitioner and obstetrician. The pre-natal period is attracting more and more attention, and now that so much is being devoted to that subject, a knowledge of it will do a great deal to preserve or lessen the mortality in the newborn. At the same time, we also learn another lesson. It shows how much of our knowledge is gained by postmortem, and I cannot refrain from urging the necessity of post-mortem examinations. I notice that in hospital practice the attending physicians frequently forget it, even where it is very possible to get the consent of the relatives. With our increased spread of knowledge, it is quite easy to get this consent, and to enlist the sympathy of the survivors of the deceased for postmortem examination.

I. D. Bronfin, Denver: I would like to ask Dr. Johnson two questions. The first one is the incidence of aspiration of amniotic fluid, and what the postmortem findings were in these aspirated cases. Were the findings different in the cases of aspirated amniotic fluid than in those of aspirated blood?

The second question I should like to ask is whether there has been a decrease in the incidence of subdural hemorrhage with a decrease in the use of pituitrin. When pituitrin was first introduced, it was used indiscriminately, and at that time very many cases of subdural hemorrhage were reported.

G. H. Curfman, Salida: The exact postmortem information which Dr. Johnson has given us clears up many a doubt as to the cause of death in the newborn. If it is not asking too much, would like for Dr. Johnson to give us briefly the method of breech delivery which tends to prevent these injuries.

Dr. Johnson (closing): As regards the appearance of injuries in several infants born from the same mother, and their relation to the vitality of the infants, it seems to me that possibly the condition of the pelvis of the mother is the probable explanation. Premature birth, however, is an important factor in the case of some of these birth injuries. The tissues of the premature infant are more easily torn and the blood vessels are more

friable than they are in the full-term baby. Many of these babies with fractured necks were born with the heart beating. They were usually large, well-developed babies. When the heart was beating at birth, but the baby did not breathe, it was given artificial respiration, in some cases for long periods, but the heart eventually stopped. Others with these fractures were probably dead or moribund at the time of delivery. In his analysis of the causes of these injuries published by Dr. Pierson in 1923, he showed that undue haste and force in breech deliveries were much more dangerous than asphyxia of the baby in slow delivery, so it is better to let nature take its course than to be too hasty.

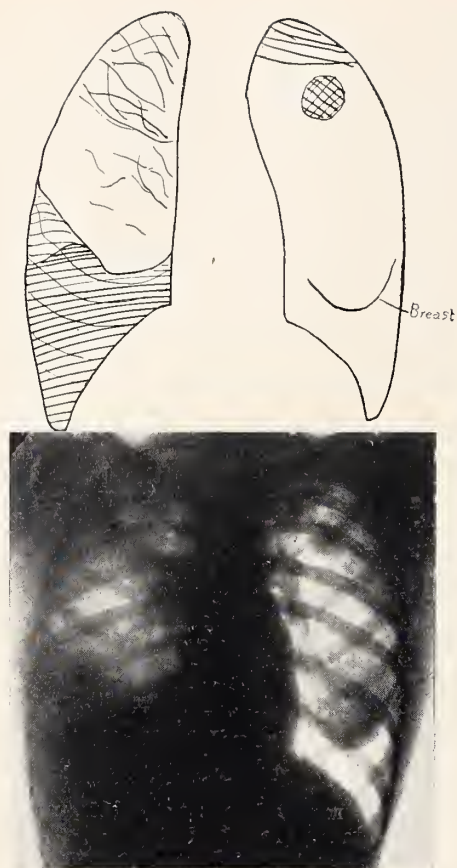
In many cases we find aspiration of the amniotic fluid in slight amounts, but in some cases large amounts are found in the lung without any evidence of inflammation. What happens to this aspirated amniotic fluid in the babies that survive, I am not quite certain. I think some of it is coughed up and gradually removed. The hyaline membrane cases have all been in premature infants. That is a little difficult to explain, but it suggests to me that the large babies with stronger respiratory movements are able to eliminate this material; they cough it up or get rid of it by vigorous respiratory movements, while the premature ones are too weak to force the air through these obstructions. But if the material does persist in the lung, I doubt whether it creates any serious trouble, providing the baby is able to survive partial asphyxia, and in spite of its resemblance it really bears no relation to the pulmonary lesions of influenza. The subdural intracranial hemorrhages which are associated with tears of the dura are due to rapid and forcible compression of the head. Where a slower moulding is possible, the tears and hemorrhages are not so apt to occur. Clinically, that is the point, to avoid too rapid and forcible compression. Some of these injuries occur more commonly in forceps deliveries and in breech deliveries, but they do also occur in some spontaneous deliveries. As to the methods of improving delivery in the breech cases, it is almost impossible for me, being simply a pathologist, to give an accurate description of the methods. Dr. Caldwell emphasizes the necessity of complete dilatation of the cervix, and of having the child's body properly adjusted to the axis of the pelvis, if necessary by pushing up and getting the head disengaged. I have had from him a long personal communication on the subject, and I would be glad to show it to any of you at a later time. (Applause.)

DESTRUCTION AND HEALING IN PULMONARY TUBERCULOSIS AS SHOWN IN SERIAL X-RAY FILMS.

S. W. SCHAEFER, M.D.
COLORADO SPRINGS

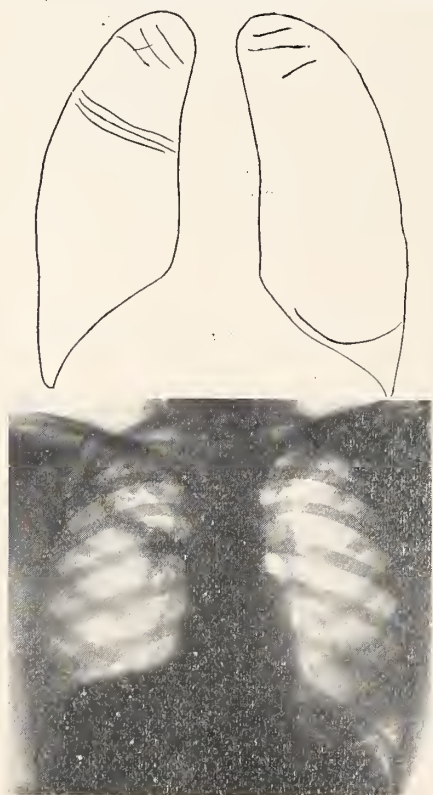
Since the taking of serial x-ray films during the treatment of our patients with pulmonary tuberculosis has become almost routine, we have been able to learn a great deal both as to the development of the lesion, how it progresses, or how it heals. This can probably best be demonstrated by showing some of the serial films together with a report of the case.

Case No. 1.—M. B., a married woman of 29 years, from Oklahoma, who on arrival had a daily afternoon temperature of 101 degrees, much cough and expectoration (Gaffky 5), was quite thin and looked ill. On physical examination a massive lesion was found on the right side with all the classical signs of an advanced pulmonary lesion, with marked dullness, distant breathing and slight tenderness at the right base posteriorly, suggesting the presence of fluid; at the left apex a small but very definite lesion with dullness, roughened breath sounds and numerous subcrepitant rales. The x-ray film confirmed the physical examination as will be seen in film



1-A

1-A. Note the marked infiltration with evidence of cavitation at the right upper; also the diffused shadow in the base rising higher in the axilla and involving the costophrenic sinus, strongly suggesting the presence of fluid in the pleural cavity. On the left side note the marked infil-

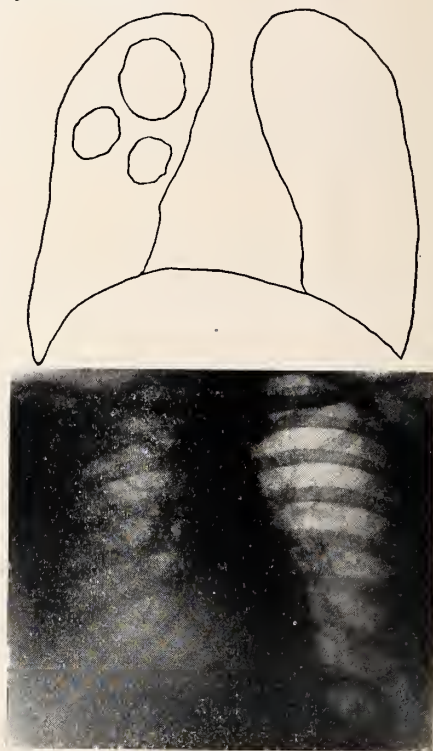


1-B

tration of the apex and the large spherical area of infiltration at level of second rib; also small scattered areas of infiltration as low as the seventh D. V. This film was taken on August 9, 1922.

Five months later a second film was taken—Film 1-B (Dec. 9, 1922). Note the marked changes in both lungs, most particularly as to the absorption of the inflammatory exudate leaving apparently good lung tissue, particularly well shown at the site of the former round area of infiltration in second i. s. left. Note also the several small areas of calcification especially well shown in two areas above level of third rib on left side, and in several small scattered areas on left. On the left side note also the many linear strands, probably due to healing by fibrosis. So in this one set of films can be seen the three different ways in which a tuberculous lesion heals

1. By absorption of the inflammatory exudate leaving good lung tissue, i.e., by resolution.
2. By fibrosis.
3. By calcification.

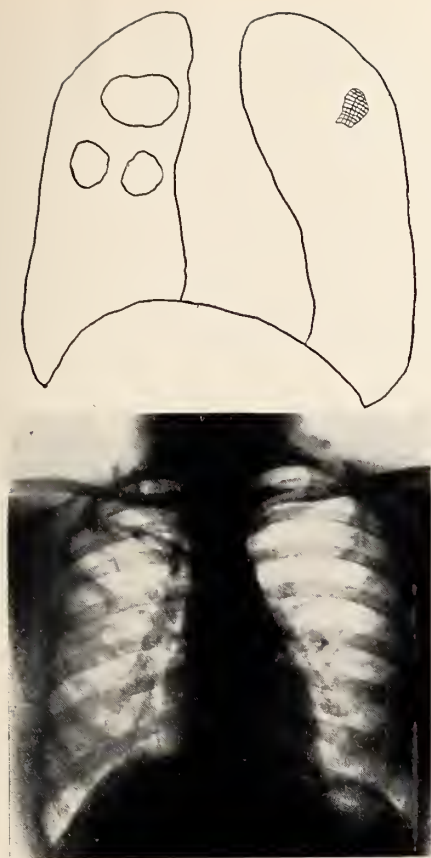


2-A

By observing the breast shadows in these two films the great gain in weight can also be seen, she having gained twenty-five pounds in weight in the five months. Shortly after this film was taken, patient returned to her home. She has remained very well and is now leading quite a normal life; in fact, she has remained so very well that she has not returned to Colorado for further examination.

The next case has already been published in another paper, but it has so much of interest in relation to the subject of this paper that I trust you will pardon my repeating it.

Case No. 2.—A. S., a girl, single, aged 21, a school teacher from New York, seen in 1919, had a moderately advanced case of tuberculosis. On account of financial difficulties, she had to go to work in the spring of 1920 before she was well. She returned in the fall quite ill, and remained in bed during the winter and spring, 1920-1921, gradually getting worse, so that by summer she was acutely ill, with a daily afternoon rise of



2-B

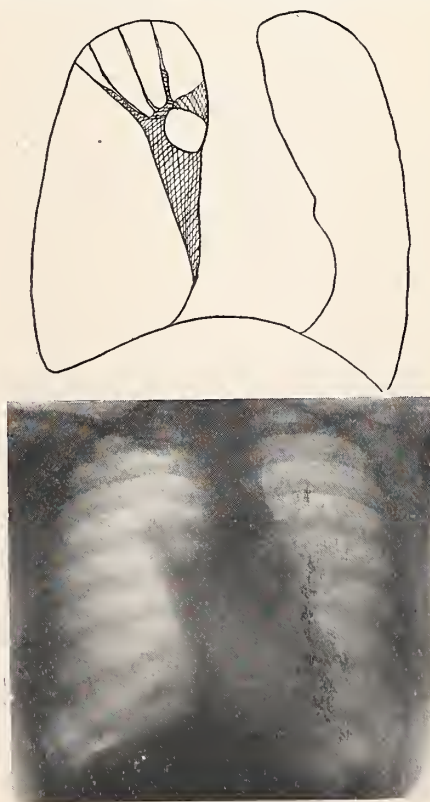
temperature to 103 F., and almost incessant cough, and eight ounces of foul sputum (Gaffky 8). Physical examination revealed numerous, very moist, indeterminate rales over both lungs, with cavity formation on the right. Roentgen-ray examination 2A, July 9, 1921, showed extensive parenchymatous infiltration in both lungs, more marked in the right, where there were also cavities. The induction of artificial pneumothorax on the right side had been considered, but after seeing the roentgenograms and the amount of infiltration in the left base, it seemed unwise, even though a portion of this apparent infiltration was, of course, due to the breast shadow. However, the patient was so ill and so uncomfortable that she insisted on trying the artificial pneumothorax. A week later, July 16, another roentgen-ray film, 2B., was made to see if it were possible to get a better picture of the left base; this was obtained and at the same time it was found that in the lapse of a week a tuberculous pneumonia was beginning in the second left interspace, just under the point where the shadow of the second rib joins the shadow of the scapula. This again made us hesitate about compressing the right lung; but the patient's condition was so critical, she was so miserable, and a fatal outcome seemed so likely unless something was done that the risk and the chances were carefully explained to her, and, not only with her consent, but at her urgent request, artificial pneumothorax was successfully induced a few days later. The compression was very slowly and carefully done, and the result was most astonishing. Almost immediately the patient lost her incessant cough and profuse expectoration, and the temperature very quickly fell below 100. In certain cases like this one, when artificial pneumothorax is successfully performed, it is one of the most remarkable miracles of modern medicine, converting a hopeless, prac-

tically moribund patient into a comfortable, cheerful convalescent in the course of a few days. This was, of course, not an ideal case for artificial pneumothorax; we were simply taking a desperate chance in the hope that if the body were freed from the absorption of poison from a massive lesion in one lung, it might be able to take care of a smaller lesion in the better lung.

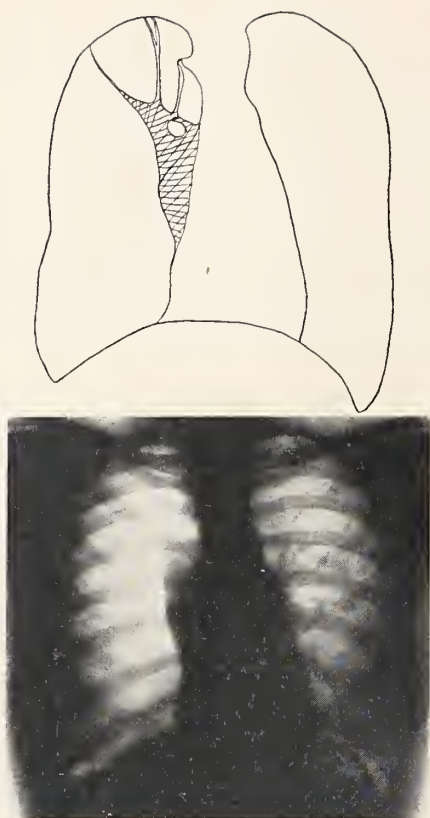
The patient's improvement continued, and she was kept in bed for several months, although her temperature was only rarely above normal, never rising higher than 99.2 F. and that only just before her menstrual periods. Another roentgen-ray examination (fig. 2 C.), thirteen months later (Aug. 14, 1922), showed a very good collapse of the right lung, but with one cavity still held open by stringlike adhesions going from the apex of the compressed lung to the apex of the chest wall. The left lung was apparently healing; although rales could still be heard, they were much less numerous and much less moist. Another roentgen-ray examination a year later (Aug. 13, 1923, fig. 2D.) showed a still better compression with the cavity almost completely closed, and the left lung apparently healed except for a small spot in the third interspace.

During the summer and fall of 1922, the entire year of 1923, and the spring and summer of 1924, the patient led a practically normal life, and did a considerable amount of tutoring. In the fall of 1924 she did not seem quite so well, and a few rales and roughened breathing could be heard in the left interscapular space. She was advised to stop her work and rest much more, and at the same time the intervals between the pneumothorax treatments were lengthened. Less air was introduced in an attempt to have the right lung reexpand so that the left might be compressed, but without success.

In November, 1924, fifteen months after the last roentgenogram was taken, another roentgen-ray examination was made (fig. 2 E.), which

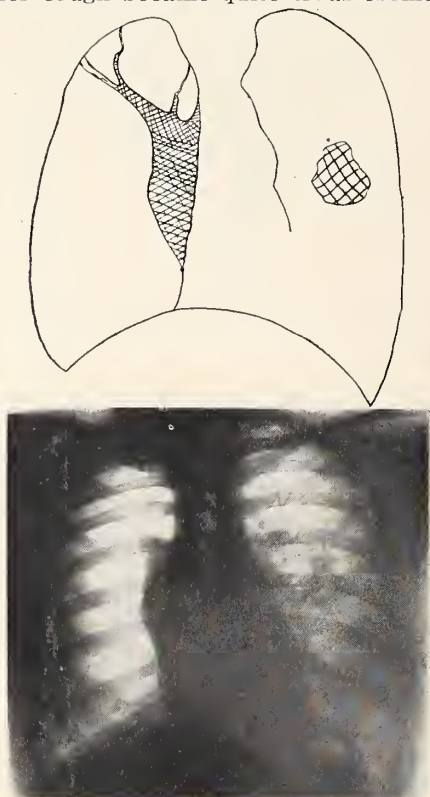


2-C



2-D

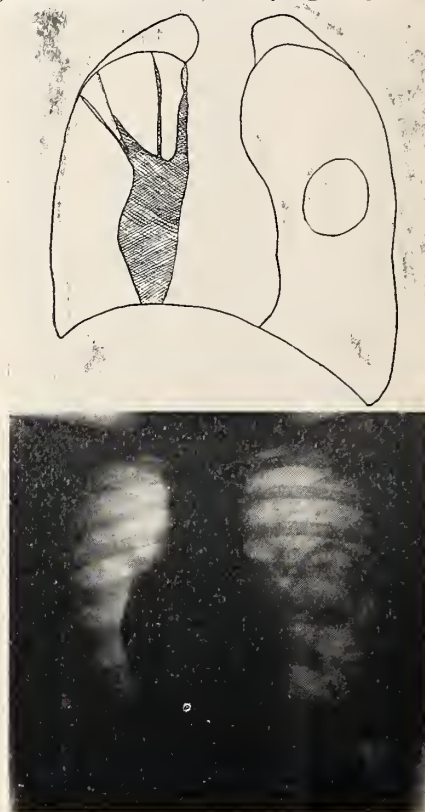
showed a definite increase in the size and density of the area of infiltration in the third and fourth interspace, and also that the cavity in the compressed right lung had entirely closed. During the winter and spring of 1925, the patient kept comparatively quiet and felt well except for occasional attacks of what she called "bronchitis," when her cough became quite troublesome. Dur-



2-E

ing the summer she was fairly well, but in September she had a serious upset with high fever and much cough, from which, however, she recovered rather quickly. She remained in bed, and December 3, 1925, another roentgen-ray examination was made (fig 2 F.), which showed a large cavity deep in the left lung where the area of marked infiltration had been in the previous plate. Two weeks later she had a tremendous hemorrhage, followed by a lobar pneumonia, and died four days later. The advisability of the induction of artificial pneumothorax in this case may be open to question, but without it, she would probably have died in 1921; with it, she had four and one-half years of a very happy life.

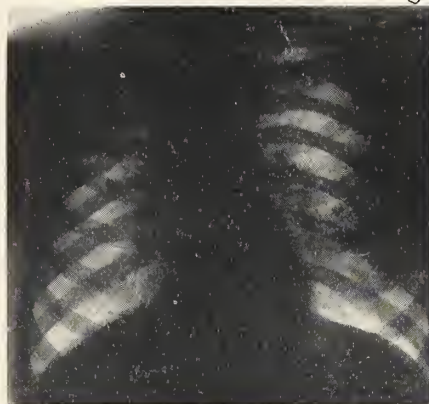
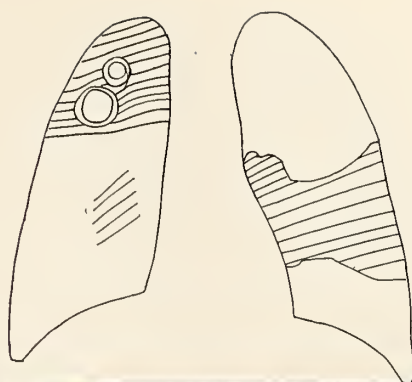
Case No. 3.—S. L., a youth of 21 years, who came to Colorado in May, 1926. He was in very good general condition, carrying slight elevation



2-F

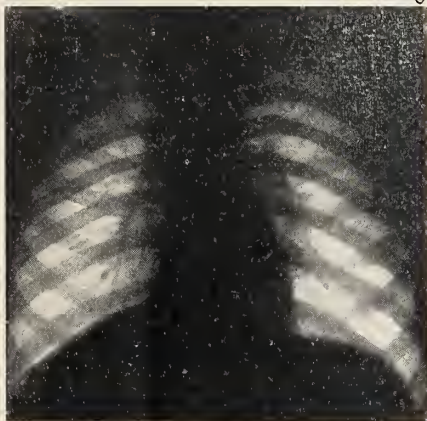
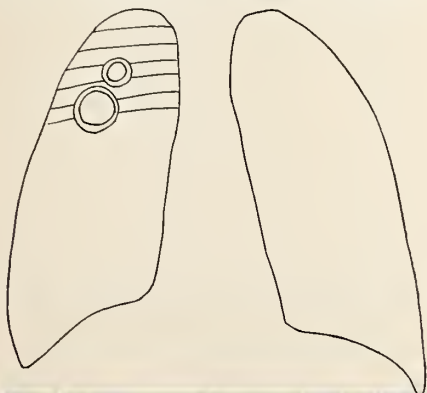
of temperature and with a very definite lesion at the right apex. His sputum amounted to only one ounce in twenty-four hours, but contained many bacilli (Gaffky 7). A film (3A.), taken at this time, shows the infiltration of the right apex and the presence of two small cavities. The left lung appeared quite clear. He was put on routine bed rest with a shot bag over the right apex. He improved slowly but definitely until the middle of August, when he had an acute upset, his temperature shooting up to 103 degrees very quickly, his stomach was upset, and he was quite achy and chilly. Accompanying this was a diminution and almost disappearance of the rales in the chest, and it was feared that a pneumonia might be setting in. However, in three or four days his temperature was normal again and he was apparently no worse for the experience. Two weeks later a similar attack came on and then we wondered if it could be that the sputum was retained in the cavities in the right lung and was poisoning him. So an effort was made to drain the cavities by postural drainage, but without success in so far as increasing the amount of

sputum or preventing the attacks which came on regularly every fourteen or sixteen days, with rapid increase in temperature to 103 or 104 degrees, general malaise, but no change in amount of expectoration, although there was some increase in cough. These attacks would last four or five days, his temperature would quickly return to normal and between attacks he would feel remarkably well. From the middle of August until the middle of October patient had five of these attacks. During this time he was seen in consultation by two other Colorado Springs men, and by Dr. Rist of Paris, and we all agreed that artificial pneumothorax on the right side should be attempted, but doubted its being successfully given on account of the patient giving a history of pleurisy with effusion on the right side when three years of age. None of the men who examined the patient found any lesion in the chest except at the right apex, the left lung being apparently clear. Permission to try to induce artificial pneumothorax on the right side was finally obtained, but before doing so it was



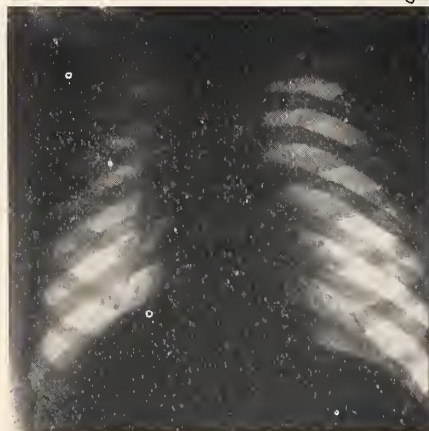
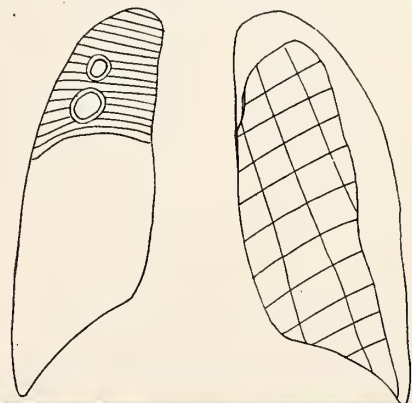
3-B

ber 7 (film 3C.), shows the incomplete pneumothorax on the left side and the right lung practically in same condition as in October. Another film (3D.), taken in March, 1927, also shows the left pneumothorax and also definite improvement in the right side, the apical lesion showing a denser fibrosis, while there has been some absorption of the parenchymatous infiltration in

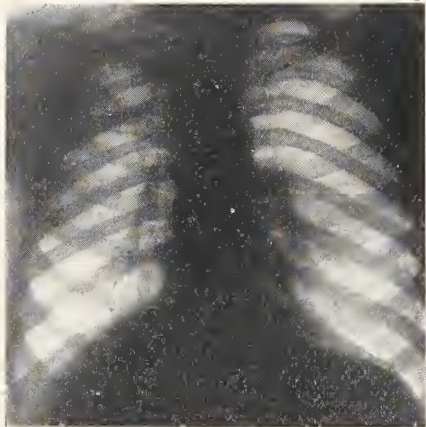
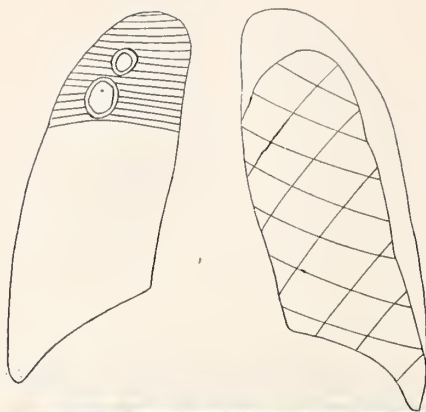


3-A

thought best to get another x-ray film. When this was taken (film 3 B.), imagine our surprise to find this massive new lesion of parenchymatous infiltration on the left side, which none of us who had examined the boy had detected, and which I was not able to make out on physical examination, even after knowing it was there. This, of course, changed the whole situation. By this time the boy had become quite sick and unless something drastic was done he would probably die. So instead of inducing artificial pneumothorax on the right side, it was decided to do it on the left. This was very easily accomplished, care being taken to give only a small amount of air at a time and to give it frequently. Almost immediately the patient began to improve and he had a very good winter and spring, with no attacks as he had had previous to the induction of the pneumothorax. X-ray films, taken on Decem-

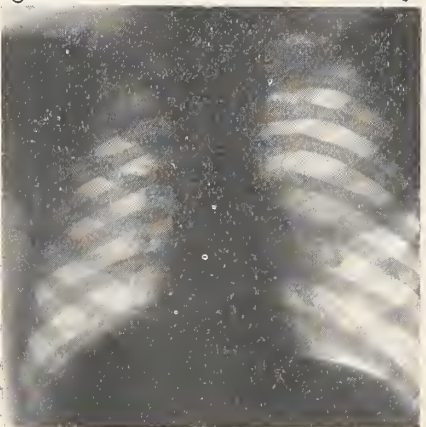


3-C



3-D

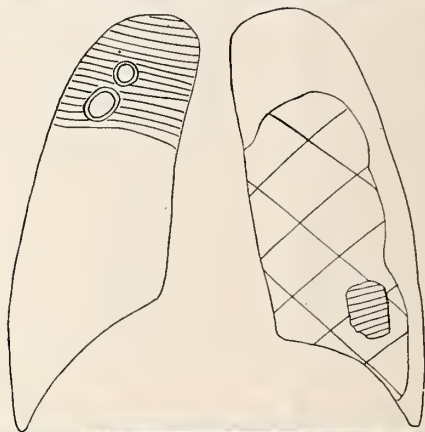
the right middle lobe. A film (3E.), taken May, 1927, shows a slightly better collapse on the left side, but on account of the collapse very little can be said as to the condition of the lesion on this side. On the right side the cavities are still present, although possibly slightly smaller, and



3-E

there has been a definite pulling over of the trachea towards the right, probably due to contraction of the fibrous tissue in the apex, as at no time had there been a positive pressure in the pneumothorax. There has also been considerable more clearing of the lesion in the middle lobe.

He continued to feel well, to sit up four or five hours a day, gained in weight, and his sputum decreased to only one or two teaspoonfuls in twenty-four hours. About the middle of June, 1927, he had another attack, similar to the ones a year ago, only much less severe, and which quickly cleared up following a dose of calomel, and was thought to be only a so-called "bilious" attack. However, two weeks later, and again two weeks after that he had similar slight at-

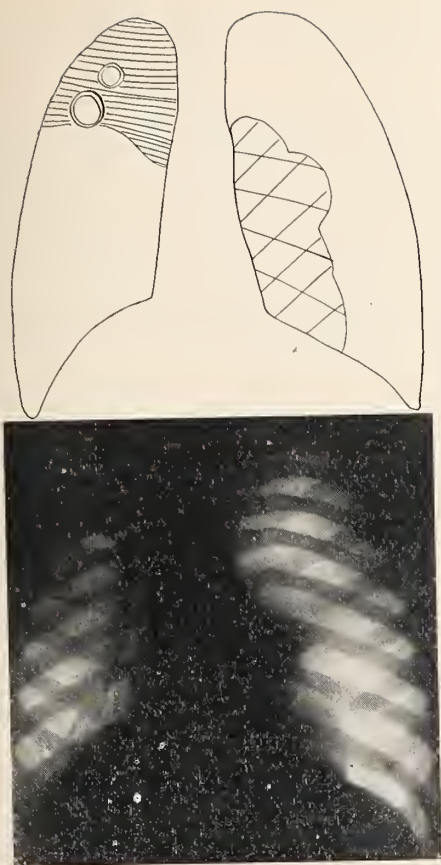


3-F

tacks with increase of sputum and rales on the right side. Another film was taken July 22, 1927 (3F.), which shows the right lung continuing to improve, but a new parenchymatous lesion in the lower lobe of the collapsed left lung. At once the pneumothorax treatments were given more often (once a week instead of every ten days) and the pressure slightly increased. Since this has been done there has been only one very slight attack which came on at the time a regular attack was first due; since that time there has been none. Another film (3G.), taken September 15, 1927, shows greater collapse of left lung with right lung continuing to improve. The ultimate outcome of this case is, of course, problematical; however, the chief point of interest is the development of these lesions in the left lung without signs on physical examination, but with pronounced symptoms.

In conclusion I wish to emphasize the fact that:

1. Tuberculosis lesions in the lungs may



3-G

ress of an artificial pneumothorax when on account of the activity of the opposite lung, we are in a great quandary as to which way to go, whether to increase the pneumothorax, or to back up, as it were, and let the lung expand. Generally I have found it wise to go gently on, at least hold what we have, because you get a certain degree of compression through the mediastinum, so that in most instances it has proved wise to hold your compression, even possibly increasing it a little bit. Then, I think the observations in such cases as Dr. Rist of Paris show that we are usually a little bit too timid about compressing the lung, in the case of a bilateral lesion. He has given 237 cases of bilateral pneumothorax and is of the opinion that he has saved a good many lives thereby.

C. O. Giese, Colorado Springs: I think this question which Dr. Gilbert brought up can be settled by the condition of the lesions. He speaks about continuing the pneumothorax. If there is high pressure, with the introduction of a small amount of air we probably are not going to influence the other lung very much; but if you can introduce a small amount of air without increasing your pressure very much, you probably will throw an extra burden on the uncompressed lung.

I. D. Bonfin, Denver: I had hoped that Dr. Schaeffer would discuss more in detail the healing process in pulmonary tuberculosis. That tuberculosis heals by sclerosis or calcification has been known for decades. It is only in the past few years that attention has been called to another form of healing, namely, by resolution. This is a very interesting phenomenon. We sometimes see an x-ray plate which shows a fuzzy, snow-flake appearance throughout both pulmonic fields, and we think that the patient is doomed. Under the usual sanatorium regimen absorption takes place in many such cases to such an extent that the subsequent serial plates do not show any evidence of a previously existing tuberculosis infiltration. Such observations have been made by many clinicians, and it is now generally accepted that a tuberculous infiltration may clear up as completely as an acute pneumonic process.

Dr. Schaeffer (closing): The point that Dr. Bronfin asked about I thought I had covered in one of the films, which showed the circular area of infiltration of the left lung to have cleared up, leaving practically no trace.

DISCUSSION.

J. A. Sevier, Colorado Springs: There is one point definitely mentioned by Dr. Schaeffer I should like to emphasize, and one that is so frequently overlooked: Namely, why is it following unilateral pneumothorax we sometimes see a marked improvement in a previously existing lesion in the opposite lung? Some time ago Major E. H. Bruns mentioned having noted this many times in his experience, especially when the lesion was situated at the apex of the good lung. The most logical explanation no doubt is that a certain pressure is produced through the partially displaced mediastinum and at the same time the lymphatic stream is slowed to some extent. On the other hand, when a lesion is present at the base of the uncollapsed lung a tendency to rapid spread is often observed.

O. M. Gilbert, Boulder: Assuming that we put the affected lung at rest, that we cure it by rest, the natural inference would be that we would exaggerate the lesion in the opposite side. I think the work that has been done by men like Curtis Lyter of St. Louis University, showing that infection does travel directly through the mediastinum, and that you have stopped the overwhelming of that lung by putting this one at rest, and stopping the absorption, is worthy of note. Another point I think worth considering is the fact that we all arrive at the point in the prog-

Non-tuberculous Diseases of the Lungs

The most common chronic non-tuberculous diseases of the lungs are chronic bronchitis, asthma, emphysema, bronchiectasis, abscess, heart diseases which produce congestion in the lungs, lung tumors and mycotic infections.

Chronic bronchitis usually occurs in older people. These cases do well in warmer climates. Bronchiectasis is a sacculcation of the bronchial tubes in which pus collects. Postural drainage treatment is useful and sometimes surgery is indicated. Asthma may be due to spasm of the bronchial wall, or kidney or heart disease. The underlying cause must be treated. Cysts caused by parasites are diagnosed by inserting a needle into them and examining the fluid. Abscess may follow the removal of tonsils or aspiration of fluid or foreign bodies. Tumors may be operated if found early, or relieved by deep x-ray treatment. Non-tuberculous diseases should be ruled out before making a definite diagnosis of tuberculosis. —Medical News Service, Series III, 1927. Tuberculosis and Health Society of St. Louis.

ULTRA VIOLET TREATMENT OF DIPHTHERIA CARRIERS*

G. P. LINGENFELTER, M.D.

DENVER

Tonight marks the close of my tenure of office as president of this Society. I am not unappreciative of the honor of presiding over this body, and I wish to thank most heartily all those who have cooperated and assisted me in conducting the affairs of the organization.

Ever since I was elected to the presidency, the thought of this night has been a most disturbing one for me, because, following a precedent long established by your former presidents, I am supposed to deliver an address replete with wisdom culled from the ancient masters, comment most sagely on the present status of medicine or perhaps outline the proper course to be pursued by all and sundry in the future.

If I might combine the logic and humor of the vivacious Hall, the eloquence of the silver tongued Grant, the polished rhetoric of studious Elder, the zeal and prophetic vision of the scholarly Sewall, the analytical mind of the precise Moleen with the dynamics of the fervent Van Meter,—then I could deliver an oration that would impress you most deeply with its rare grandeur and ever after be treasured in the archives of this Society.

But, be of good cheer, for I realize my own shortcomings and have, I hope, profited by the example of a president who has become most famous in public life by his brevity, and also his ability to leave something to your imagination, when he said, "I do not choose to run."

I should like to talk to you for a few minutes about an unsolved problem in public health—viz: "The Diphtheria Carrier." As you are aware, much experimental therapy has been indulged in with indifferent success. The remedies employed have been legion, which of itself suggests that none of them has been found wholly satisfactory. Several years ago, when I became connected with the Division of Contagious Diseases of the City Health Department, I found several insane diphtheria carriers confined in the basement of one of the hospital wards, where they had been from six months to four years, and

treated by all the suggested remedies with no avail. At that time, the city owned an old building on the open prairie along Sand Creek, formerly used as a smallpox hospital but unoccupied for some time. At the suggestion of the late Dr. Coffman, then Deputy Health Commissioner, this building was cleaned and fumigated. The insane patients were vaccinated and removed to this place. A well trained nurse with sufficient helpers placed in charge. These patients were kept out of doors and exposed to the sun with as little clothing as decency would permit from May until September, during which time they became as sunburned and brown as Mexicans and markedly improved in general health. Repeated negative cultures were then obtained and the patients transferred to the Hospital for the Insane at Pueblo, where I lost contact with them.

This gave me the idea that exposure to the actinic rays was a factor of considerable importance. The old buildings were later destroyed by fire and no opportunity was afforded to repeat the experiment. This view was again impressed on me by the work of Leo C. Donnelly of Detroit to whom is given the credit of having first reported a large series of diphtheria carriers treated by actinic ray, the report of which appeared in the Journal of the Michigan State Medical Society in 1922, and reads almost like Erlich's *Therapia Sterilizans magna*. Donnelly's technique consisted of projecting the rays onto the tonsils through a hollow metal applicator for from three to five minutes. In a group of forty cases cited, twenty were rendered sterile after one treatment, sixteen more after the second, the remaining four after three exposures. In the treatment of the nose, ten to fifteen drops of adrenalin chloride solution were applied to the mucous membrane and the nasal applicator used for ten minutes during which time it was slowly inserted and withdrawn. This amazing work of Donnelly served as a guide in another group of cases occurring in the U. S. Marine Hospital, No. 21, New York, treated by Dr. Floyd C. Turner, Assistant Surgeon, U. S.

*Presidential address delivered before the Denver County Medical Society, January 2, 1928.

ULTRA VIOLET TREATMENT FOR DIPHTHERIA CARRIERS

NAME	AGE	Date 1st Quar.	Date to Hosp.	No. Ultra Violet Treat- ments.	Initial Treat. Nose & Throat	Final Treat. Nose & Throat	Avg. daily in- crease of exp.	Initial Body Treat. U.V.Rays cooled	Final Body Treat. U.V.Rays cooled	Avg. Daily in- crease Body Exp.	Length of Ultra Dis- charge Violet Ray Treat- ment	Date
					Sec.	Sec.	Sec.	Min.	Min.	Sec.		
Sammy Matz	13	1/22/26	6/12/27	27	15	105	3.3	3	20	38	4 weeks 29 days	11/26/27
Virginia Ivenson	10	9/2/27	9/2/27	23	15	40	1+	2½	14	30	4 days	11/24/27
Rose Scardino	13	10/22/27	10/22/27	2	15	15	0	3	4	60	4 days	10/30/27
Thelma Porter	12	10/24/27	10/24/27	3	15	15	0	3	4	30	4 days	10/30/27
Geo. Pritchard	8	9/23/27	9/23/27	9	15	25	1+	3	5½	16+	12 days	11/7/27
Raymond Bevel	6	9/23/27	9/23/27	2	15	15	0	3	4	60	10 days	10/30/27
Adaline Simons	10	5 wks.	10/27/27	8	15	20	.6	3	7½	67	89 days	11/7/27
Edith Abbott	12	5 wks.	10/27/27	26	15	60	1.7	3	20	39	20 days	11/29/27
Robert Russell	7	9/21/27	9/21/27	20	15	45	1.5	3	14	33	22 days	11/21/27
Joe Defillica	8	3 wks.	10/29/27	22	15	55	1.8	3	17	40	18 days	11/29/27
Tony Delgado	5	3 wks.	10/29/27	18	15	35	1+	3	14	37	9 days	11/19/27
Raymond Iudwig	9	11/5/27	11/5/27	9	15	25	1+	2½	9	46+	8 days	11/14/27
Ida Martinez	24	11/9/27	11/9/27	8	15	35	2+	3	5	15	8 days	11/17/27
Tommy McCune	5	11/11/27	11/11/27	8	25	25	0	3	6½	18	8 days	11/19/27
Nicky Matz	10	1/24/26	1/24/26	7	15	35	1	3	6½	20	7 days	11/19/27
		4 t. since	1/12/27								11 days	11/27/27
Margaret McCune	6	11/11/27	11/11/27	11	11	35	1.8	3	10	38		
Glenda Rider	16		12/24/27	30								

ULTRA VIOLET TREATMENT FOR DIPHThERIA CARRIERS

NAME	AGE	Date lst Quar. or length of Hosp. Quar.	No. of Ultra Violet Treat- ments	Initial Treat. Nose & Throat water- cooled Sec.	Final Treat. Nose & Throat water- cooled Sec.	Avg. Daily increase of exp. Sec.	Initial Body treat. U.V.Rays Air- cooled Min.	Final Body Treat. U.V.Rays Air- cooled Min.	Avg. Daily increase Body exp. Sec.	Length of Ultra Violet Ray Treat- ment	Date of Dis- charge
Vera Vail	22	11/9/27	6	45	120	12+	2½	4	15	6	12/17/27
Billy Hildebrand	12	12/12/27	4	45	90	11+	2½	4	22	4	12/17/27
Ann Rowlands	50	11/6/27	12	30	180	12+	3	12	45	13	12/28/27
Neil Denison	14	12/14/27	6	30	90	10	3	5	20	6	12/21/27
S.H. Denison	57	12/14/27	6	30	105	12+	3	5	20	7	12/21/27
Ellsworth Johnson	17	12/15/27	5	30	90	12	3	5	24	5	12/21/27
Albert Tomlin	18	12/15/27		30			3				
Leland Crawford	15	12/16/27	4	30	75	11	3	5	30	4	12/21/27
Mary McLinden	10	12/16/27	4	30	75		3	6			12/21/27
Joe McLinden	17	12/16/27	10	30	135	10+	3	9	36	11	12/28/27
Carl Capra	15	12/16/27	4	30	75	11+	3	6	45	4	12/21/27
Amanda Knecht		12/16/27		30			2½				
Josephine Janicito	10	12/16/27	4	30	75	11+	3	6	45	4	12/21/27

Public Health Service, with the following technique. With the compression $\frac{5}{8}$ " applicator, contact with each tonsil was maintained for one minute. After several of these treatments, there appeared white spots on the mucous membrane the size and shape of the quartz tip. These produced no pain or other untoward symptoms and disappeared spontaneously in about two days. Later a blunt nasal quartz applicator was used for both nose and pharynx. The patients easily became accustomed to the treatment so that the applicator could be moved around the throat, introduced behind the uvula or down towards the epiglottis without producing gagging. This general raying of the throat was done for $2\frac{1}{2}$ minutes daily. The nasal applicator was inserted as far as possible into each naris, left in one minute and slowly withdrawn.

During the time in which the ultra violet was used alone, seven of the thirteen patients received three negative cultures, two days apart and were discharged. Following this period ultra violet rays were used by the same technique on the remaining patients, alternated every other day with the application of 2% mercurochrome in nose and throat. Four additional had three negative cultures and were discharged. The remaining two cases were treated for two days with mercurochrome alone, without effect. This was followed by the combined Ultra Violet and mercurochrome treatment on the same day, resulting in three negative cultures and discharging of the twelfth patient. The thirteenth deserted after one negative culture. The cultures were taken every second day, no treatment being given for at least 12 hours before they were taken.

It would seem from the foregoing that there was no well established technique, so I devised one of my own. Keeping in mind the results of the open air heliotherapy previously referred to, I combined the water-cooled local applications with general body radiations from the air-cooled lamp, exposing the entire person daily, gradually increasing the dosage with the idea of building up resistance and increasing metabolism. First, nose and throat should be thoroughly irrigated with normal saline followed by a solu-

tion of eosin. Then with the appropriate quartz applicators treat the nose and throat.

Beginning cautiously and gradually increasing the length of exposure as you will see by the chart which I shall show. I felt as though we should not rely solely on the bactericidal effect of the water-cooled lamp, although it is certainly effective when the bacilli can be reached by the rays. In order to determine the length of time required to kill diphtheria bacilli, we cultured both carrier and acute types of diphtheria and exposed the plates to rays from the water-cooled ultra violet lamp for 15 seconds, 30 seconds, two minutes, and three minutes at one inch distance with the following results,—15 and 30-second exposures the organisms would reproduce. At two minutes four out of six were rendered sterile, while following three-minute exposures no growth was obtained. Donnelly states that the organisms are more quickly killed in living tissue than on culture media. I felt that I should begin with the small doses until I became familiar with the reaction of the individual mucous membrane. By beginning with short exposures, you can increase the daily dosage and patients do not complain of any discomfort. While if you begin with a full dose considerable irritation of the mucous membrane is apt to result.

Of my series of 44 cases ranging in age from 5 to 57 years, known carriers under quarantine at home or hospital (or as in one case, a fugitive from quarantine), from two weeks to three years, receiving from 3 to 27 treatments, ranging from $2\frac{1}{2}$ minutes initial exposure to 20 minutes final exposure, with the air-cooled lamp, and 15 seconds to $2\frac{1}{2}$ minutes with the water-cooled lamp, 42 have been released with negative cultures. Two are still under treatment, while three of those released were found positive, in the follow up cultures taken two weeks after release, and returned for further treatment.

Conclusions

The work of Donnelly, Turner and the writer would seem to show that we have in the proper application of ultra violet rays to diphtheria carriers, a means of rendering them harmless to society. The average of results would appear to be superior to that obtained by the x-ray and very much better

ULTRA VIOLET TREATMENT FOR DIPHThERIA CARRIERS

NAME	AGE	Date 1st Quar. or Length of Quar.	Date Adm. to Steele Hosp.	No. Ultra Violet Treat- ments.	Initial Treat- ment Nose & Throat water-cooled.	Final Treat- ment increase of exp. Rays, Air-cooled Min.	Initial Body Treat- ment. U.V. Rays, Air-cooled Min.	Final Body treat. U.V. Rays Sec.	Avg. Daily increase body exp. Sec.	Length of Ultra Violet Ray Treat- ment	Date of Dis- charge	
Betty Winn	9	4 weeks	11/15/27	5	15	35	4	3	7	48	days	11/27/27
Edward Ambrose	8	11/20/27	11/20/27	3	15	30	5	3	4	20	3 days	11/28/27
Harry Zeppelin	6	11/22/27	11/22/27	5	30	60	6	3	7	48	5 days	12/3/27
Iuena Ames	23	4/23/27	4/23/27	6	30	70	66	3	7	40	6 days	12/4/27
Shirley Klausner	6	11/24/27	11/24/27	22	30	195	7 +	3	20	46	23 days	12/22/27
Sam Falasco	47	5 weeks	12/2/27	8	30	135	13 +	3	8	37	8 days	12/10/27
Nicky Matz	10	Culture again Pos. 12/3/27 12/3/27		8	40	150	14	3	10	52	9 days	12/10/27
Mary Kelsey	5	12/3/27	12/3/27	7	30	105	10	3	8	43	8 days	12/10/27
Jack Myers	14	12/3/27	12/3/27	7	30	120	14 +	3	9	51	8 days	12/10/27
Joe Defillica	8	Culture again Pos. 12/5/27 12/5/27		5	40	120	16 +	4	8	48	6 days	12/10/27
Rose Schreiber	14	8 weeks	12/8/27	16	30	210	11 +	3	14	41	15 days	12/24/27
Mrs. Kolof	38	12/11/27	12/11/27	14	45	210	11 +	3	14	48	14 days	12/24/27
Mary Crosby	22	11/12/27	11/12/27	6	45	120	12 +	2 1/2	4	15		12/17/27
Mrs. Garcia	26	11/25/27	11/25/27	5	30	90	12	3	4	12	5	12/28/27

than by the use of local applications of any other kind. Tonsils and adenoids should be removed and all other abnormalities of nose and throat corrected. Because of the lack of penetration of the bactericidal rays, repeated daily exposures are necessary to kill each crop of organisms as they reach the surface.

It is imperative that the patients be hospitalized where sanitation and personal hygiene can be supervised. As a home or office treatment it is impracticable on account of the time factor, expense, supervision, and quarantine requirements.

NEWS NOTES

Dr. and Mrs. Henry Sewall have just returned from a vacation in southern California.

Dr. Allen K. Krause, editor of the American Review of Tuberculosis, was a recent visitor in Denver. He took the occasion to call on several of his medical friends while there.

Dr. Francis R. Packard of Philadelphia, while the honored guest of the Denver Clinical and Pathological Society, was a favorite speaker before other organizations while in Denver. He addressed the faculty of the University of Colorado School of Medicine on the subject of "Body Snatchers" or "Resurrectionists." He had occasion to speak in great praise of the city and state medical library.

The staffs of St. Joseph's, St. Luke's, St. Anthony's and Children's Hospital have recently enjoyed their annual dinners.

Dr. Gerald Webb of Colorado Springs has recently returned from a trip to New York. It is understood that his recent book, "The Life of Laennec," will soon be off the press.

Dr. T. E. Carmody gave a lecture on "Tumors of the Face and Mouth" at the meeting of the Sioux Valley Ear, Nose and Throat Academy, which was held in Omaha, February 15th.

Dr. George B. Packard died February 23, 1928. An appropriate account of his remarkable career will appear in an early number of this journal.

Alton L. Smiley

Doctor Alton L. Smiley died at his home in Colorado Springs, Colorado, January 2, 1928, after a long illness. He was born in Ithaca, New York, July 16, 1878. He was graduated from the University of Buffalo, New York, in the class of 1900, was connected for a time with the medical staff of Manhattan State Hospital of New York and later with Doctor Carlos F. McDonald's House of Central Valley, New York.

He came to Colorado in 1914, serving on the medical staff of the Colorado State Hospital at Pueblo, Colorado, until he became assistant superintendent to Dr. H. A. La Moure of the Colorado State Hospital, which position he held until August, 1926, when he moved to Colorado Springs.

He was a member of the Pueblo County Medical Society, The Colorado State Medical Society, The American Medical Association and the American Psychiatric Association. He is survived by his wife, Ellenora Smiley, a stepson, Nelson Carmishall, and a sister, Mrs. John G. Brooks of Ithaca, New York.

Post Graduate Course in Neuropsychiatry July 1 to July 31, 1928

The staff of the Colorado Psychopathic Hospital of the University of Colorado Medical School, aided by heads of other departments, will offer a course in neuropsychiatry during the month of July. This course will be held at the Colorado Psychopathic Hospital, 4200 East Ninth Avenue, Denver, Colorado.

Two Health Journals Amalgamate

The American Public Health Association has purchased The Nation's Health and has combined it with its own publication, The American Journal of Public Health. The January number, the first under the new arrangement, has appeared with a new cover and a new format.

MEDICAL SOCIETIES

DELTA COUNTY

February 3, 1928, the Delta County Medical Society met in Delta; dinner at the Delta House. Members present were: Drs. Bolton, McArthur, Lawrence Hick, Jr., McClanahan, C. B. Burgin, Day, Smith, Cleland, Erich and L. A. Hick, Sr.

Business and scientific meeting at Dr. Cleland's office. Treasurer reported \$17.11 balance on hand.

Election of Officers

President—Dr. W. C. Copeland of Hotchkiss, Colo.

Vice President—Dr. W. A. Day of Delta, Colo.

Secretary-Treasurer—Dr. Lawrence Hick, Jr., Delta, Colo.

Delegate to State Meeting—Dr. Harry A. Smith.

1st Alternate—Dr. A. C. McClanahan.

2nd Alternate—Dr. W. H. Lewis.

Censor—Dr. A. E. Miller.

Scientific paper for the evening was "Lethargic Encephalitis," by Dr. Cleland. General discussion.

Next meeting to be held in Delta; papers for the evening to be by Drs. Bolton and Hick, Sr.

HARRY A. SMITH,
Secretary.

NEW OFFICERS

Otero County Medical Society

President, C. E. Morse, La Junta.

Vice President, J. O. Hardy.

Secretary-Treasurer, Geo. Sorensen, La Junta.

Delegate, B. F. Blotz, La Junta.

Montrose County Medical Society

President, C. E. Lockwood, Montrose, Colo.

Vice President, F. G. Didrickson, Montrose.

Secretary-Treasurer, J. A. Spring, Montrose.

Delegate, Isaiah Knott.

Chaffee County Medical Society

President, C. R. Fuller, Salida.

Vice President, O. T. Parker, Salida.

Secretary-Treasurer, G. W. Larimer, Salida.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITALS

Annual Clinics—March 21-24, 1928

The annual clinics of the School of Medicine and Hospitals will be held at the institution on March 21 to 24, inclusive.

A most cordial invitation is extended to all physicians of Colorado and adjoining states to attend these clinics which will be given by the faculty of the School of Medicine. The clinics are given as a part of the service of the institution to this locality and are therefore given free of cost to the visiting physicians.

Detailed programs will be sent out at a later date. The general outline of the program is as follows:

WEDNESDAY, MARCH 21, 1928

8-12 A. M.

Gynecology—Diagnostic and Operative Clinics.

Pediatrics—Diagnostic Clinics.

1-5 P. M.

Ophthalmology—Diagnostic and Operative Clinics.

Neurology and Psychiatric—Diagnostic Clinics.

THURSDAY, MARCH 22, 1928

8-12 A. M.

General Surgery—Diagnostic and Operative Clinics.

General Medicine—Diagnostic Clinics.

1-5 P. M.
Oto-Laryngology — Diagnostic and Operative Clinics.
Special Topics—By Laboratory Departments.

FRIDAY, MARCH 23, 1928

8-12 A. M.
Urology—Diagnostic and Operative Clinics.
Dermatology Clinics, Obstetric Clinics.

1-5 P. M.
Clinics on Special Topics.
Clinical and Pathological Conference.
Orthopedic Clinics.

SATURDAY, MARCH 24, 1928

8-12 A. M.
General Surgery—Diagnostic and Operative Clinics.
General Medicine—Diagnostic Clinics.

The School of Medicine and Hospitals are located on Colorado boulevard between Eighth and Ninth avenues.

Address all inquiries to

DEAN'S OFFICE.

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE.

4200 East Ninth Avenue, Denver, Colorado.

WOMAN'S AUXILIARY NOTES

On Feb. 20th Denver Auxiliary held its first social event of the year by giving a benefit bridge tea at the Nurses' Home of Denver General Hospital.

A total of over one hundred dollars was cleared and will be used to buy reference books for the library.

Members also donated books of general interest, these also to be used for the pleasure of the nurses.

Great credit is due to the efforts of Mrs. David H. Coover and her committee in making this an unusually successful event.

El Paso county unit has just completed its first year's work.

Though a limited number of women have cooperated, those few are doing valiant service.

Meetings are held every second Wednesday in the month. Their programs are educational and all on "child welfare" work.

The Society sent eleven Hygeia subscriptions to county schools for Christmas presents. They have sponsored seven health talks before P.-T. A. groups. Talks were given by physicians of the county Society. Twenty-seven health articles from Hygeia have been printed in local papers that have county circulation.

Through contacts with P.-T. A.'s Daughters, 1812, D. A. R.'s, American University Women, Girl Scout executives, they have asked for cooperation in urging birth registrations, these groups appealing to rural gatherings and individuals wherever possible.

They have sponsored the health program of the Girl Scouts, including the educational side, pure water, milk supply, care of teeth, correct posture, sunshine and fresh air.

This program will be carried on directly under the supervision of the Auxiliary from March 1 to the first of May.

WHY MEN FAIL

Your recent editorial on Why Men Fail is so morbidly pessimistic and fatalistic that it should not pass without some comment.

To say that "men are born to fail," that "no intercurrent influence can change a man's des-

tiny," and "that a man's fate is sealed from his birth," is a kind of prophecy that not only robs a man of personal responsibility but also tends to paralyze every new endeavor. We grant that the mentally defective and insane, whom the writer may have had in mind, are overwhelmingly weighed down by legacies and potentialities of this kind; and that all of us more or less, may be biased and handicapped by hereditary influences or stigmata of one kind or another. Nevertheless the task of life that challenges the modern youth stirs him to rise above such handicaps. The attainments of modern science prove that men are constantly achieving things never before dreamed of as possible.

One who writes intelligently about India tells us that this kind of false philosophy has tied India down for centuries. He says: "In the mind of the Mohammedan there is gripping him in the innermost places the thought of Kismet—everything is predestined by the sovereign will of Allah. When he gets under difficulties the tendency is to tap his forehead and say: 'What can I do? My Kismet is bad.' It is more or less fatalistic. On the other hand the Hindu has lying back in his mind the thought of Karma—that we are in the grip of the results of the deeds of the previous birth. When the Hindu runs against difficult situations he usually says: 'What can I do? My Karma is bad.'"

This kind of philosophy is splendid dope. This etiology of failure is good seed for more failures. We can fail more cheerfully. We can always lay the blame on some one else. We can even cover our shame and disgrace with the mantle of heredity. This was stated thus about three thousand years ago: "Our fathers have eaten sour grapes and set the children's teeth on edge."

Every man settles his own destiny by his personal choices and decisions. His natural bias plays its part, and so does environment, education, religion and personal thinking. He himself casts the final ballot. There is no such thing as failure to the man who chooses the right. Merely making money is not always making good. "Not failure but low aim is crime." Emerson said: "In my own heart I find the worst man's mate." But he didn't yield to those potentialities. Neither need we.

W. J. B.

CORRESPONDENCE

My dear Editor:

Inasmuch as the erythrocytes are peculiar, when looked at from the standpoint of the complete cell; they having no nucleus, I am wishing to present the hypothesis that the red blood cell is, itself a nucleus, and that the cytoplasm of this cell is represented by the surrounding blood plasma.

Perhaps this has been said long ago, but I have been unable to find reference to the subject.

The difference in the pH of the red corpuscle and the blood plasma, their chemical content in health and disease, their surface tension and osmotic properties, seem to point to their relationship as nucleus and cytoplasm.

The above is not offered as in any way a statement of fact, but rather as a suggestion, the truth of which may be proven or disproven, by men who have a better knowledge of physiological chemistry than I have.

W. A. GAGE.

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EDITOR:

EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

ALL HATS OFF TO THE MONTANA DOCTORS

An editorial appeared in our November, 1927 number of Colorado Medicine in which we criticised the Montana State Medical Society for its action in withdrawing from the agreed tri-state meeting which is to be held in the Yellowstone Park in August of this year.

But that same editorial also contained the expression of the deepest desire on the part of the Idaho and Wyoming physicians to have the Montana men with them in that meeting. This editorial was reprinted as a letter and sent to every physician in Montana with a request that the Montana Society reconsider the withdrawal and join Idaho and Wyoming as originally planned.

All real men make mistakes in life. All state medical societies do, by reason of the same human equation, make them. But the greatest mistake in life is the man or woman who does not do anything.

The Montana State Medical Society made a mistake when they voted to quit the bunch and now they have proved themselves real men by acknowledging the mistake and by again voting to join with Idaho and Wyoming in the Tri-State Yellowstone Park meeting in August, 1928. This action was taken by the county societies and ratified by the council of the State Society at a meeting held in Billings, Jan. 15, 1928.

All hats off to the officers and members of the Montana State Medical Society. We welcome you back and we shall hold you in higher esteem than ever because you can not only make a mistake but you are big enough to acknowledge it and correct the error.

In justice to you the joint program committee wants to extend a most hearty invitation to you to assist this committee in the selection of such speakers you now want and in the carrying out of the entire program and entertainment.

At present we have the promises from twenty-two of the leaders of the profession, all outside of the three states, to attend and present papers and no one can begin to tell the wonderful times we are going to have August 27, 28 and 29 in the Yellowstone. Not a doctor in Idaho, Montana or Wyoming can afford to miss one minute of this meeting.

We sage brush men think sometimes that we cannot all afford to go to Washington, New York or some other far distant point to attend the yearly meetings of the A. M. A., which may be true, but we doubt it. Every dollar spent in attending those meetings makes us better and more careful physicians. Surely every cent spent in the trip to the Yellowstone meeting will pay large dividends because we are to have at our doors some of the brainiest leaders in the United States as our teachers. Every doctor in Idaho, Montana and Wyoming ought to deny himself anything in order to attend every minute of the Yellowstone meeting.

Of course we do not limit attendance to only these three states, but we extend an invitation to all the doctors everywhere to come, learn and play with us in the Yellowstone Park.

Headquarters will be at the Canon Hotel, one of the most beautiful spots in the park. If you do not care to stay at the Canon Hotel you can stop at the Wiley's camp at the

canon; or, if you prefer, you can bring your camping outfit and enjoy that life right next to nature. String up the fishing pole, get out your flies and let's be kids together.

Of course you will want your wife along and you owe it to her. She will enjoy the trip and the fellowship of the doctors' wives just as we enjoy meeting our friends among the men. Make it your vacation and let's all go.

E. W.

NEWS ITEMS

Dr. H. S. Holmes, formerly of Richey, Mont., has recently located at Acme. Dr. J. E. Carr, who held the company physicianship, resigned and is associated with Dr. V. J. Keating in Sheridan.

Dr. and Mrs. W. H. Roberts are spending a vacation in Florida where they are enjoying golf in the Southland. They expect to be away for two or three months. Part of the time will be spent in post-graduate work in Johns Hopkins.

Dr. J. E. Carr has been confined in the Sheridan Hospital with pneumonia.

Fremont County

"An extensive epidemic of spinal meningitis is running its course among the Arapahoe Indians in Fremont county. Dr. A. B. Tonkin, county health officer, reports that he has twenty cases under his care besides several bad accident cases occurring in the oil fields.

We expected to publish Dr. Tonkins paper which was read before the meeting of the state health officers at Cheyenne in this issue, but on account of Dr. Tonkins being so busy will not be able to publish it until next month.

Laramie County

The Laramie County Medical Society at Cheyenne elected Dr. J. H. Conway as president, Dr. Galen A. Fox as secretary.

At the January meeting of the Cheyenne Memorial Hospital staff, Dr. Geo. L. Strader was elected chief of staff, Dr. C. Y. Beard, vice chief; Dr. F. L. Beck, secretary.

Natrona County

Dr. C. H. Platz has recently returned from California where he spent several weeks at post-graduate study.

Dr. Allan McLellan left February 2nd for post-graduate study in California.

Dr. L. C. Smith, formerly of Casper but who for the past five years has been located in Alaska, has recently returned to Casper and opened offices in the Townsend Bldg. The old doctor has been a great bear hunter in his day and on his return from Alaska brought some wonderful skins of kills he had made there, among them are four of the great Alaskan brown bears and one black bear which he says doesn't account for much.

Fremont County

Dr. Hugh J. O'Donnell has taken charge of the Indian work at Fort Washakie. He is a Creighton graduate and previous to entering the service was practicing at Onawa, Iowa.

SHERIDAN COUNTY

The Sheridan County Medical Society at its annual meeting held Jan. 13 elected the following officers for the year:

President, Dr. E. G. Dennison.

Vice President, Dr. Wm. Schunk.

Secretary-Treasurer, Dr. C. E. Carr.

Censor, 3-year term, Dr. T. E. Marshall.

Miss Witcher of the U. S. Public Health Department, working under the direction of the Wyoming State Board of Health, addressed the meeting and outlined her plan for activities in Hot Springs, Washakie, Park, Big Horn, Sheridan, Johnson, Campbell, Crook and Weston counties. She expects to give lectures on pre-natal infant welfare work to mothers.

CALL FOR PAYMENT OF DUES

Don't forget that if you haven't paid your state dues to do so at once. They were due during the month of January. Send your check in right away that we may report as large a membership on April 1st as possible to the American Medical Association. As the representation in the House of Delegates is based on the next five years on the number of paid-up memberships as reported by the state secretary as having been paid prior to April 1, 1928. It is a duty you owe to yourself and to the State Society to pay your dues at once. Only those paying before April 1st will receive copies of Colorado Medicine after this month, so if you do not get your copy you will know that on the books of the state secretary your dues show as unpaid. If you want Colorado Medicine, pay your dues. The State Society isn't going to pay them for you, so come through if you have to come clean.

COUNTY HEALTH OFFICERS OF WYOMING FORM ASSOCIATION

On January 16th the county health officers of the state of Wyoming met in executive session with the State Board of Health. An association was formed by the doctors which it is believed will result in much benefit to all concerned. Following the adoption of a constitution and by-laws there was a "testimony meeting." Each health officer talked of the various problems presenting themselves in different localities. This was very animated and interesting.

In the afternoon, Dr. P. W. Covington of the Rockefeller Foundation, talked of the value of Health Units in Counties. Several others interested in the health problems had asked for time to appear before the meeting, which was granted.

In the evening a banquet was held at the Plains and the medicos relaxed from the serious business of the day to the congeniality of good company on pleasure bent and good food. A three-piece orchestra added much pleasure to the party.

Those attending were: Drs. Chester Harris, Basin; J. S. Hunter, Gillette; E. A. Kell, Rawlins; F. C. Shaffer, Douglas; Albert A. Tonkin, president of the State Board, Riverton; G. O. Hanna, Lingle; V. A. Mokler, Thermopolis; John Hynds, Buffalo; N. C. Nelson, Cheyenne; M. J. Goldberg, Kemmerer; H. Garst, Casper; G. D. Murphey, Lusk; F. G. Huffman, Wheatland; J. W. Montrose, Daniel; J. H. Goodnough, Rock Springs; J. L. Wicks, Evanston; C. W. Huff, Jackson; T. E. Marshall, member of the State Board, Sheridan; G. L. Strader, vice president of the State Board, Cheyenne; W. H. Hassed, secretary of the State Board of Health and state health officer. This meeting was remarkable in that all the county health officers but three were present.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 11, 12, 13, 1928.

OFFICERS, 1926-1927

President, William A. Sedwick, Denver.

President-elect, Samuel B. Childs, Denver.

Vice-Presidents, 1st, James M. Lamme, Walsenburg; 2nd, W. B. Hardesty, Berthoud; 3rd, R. H. Finney, Pueblo; 4th, R. B. Porter, Glenwood Springs.

Secretary, F. B. Stephenson, Denver.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association:

Senior, T. E. Carmody, Denver, term expires 1928; Alternate, Ralph Johnston, La Junta, term expires 1928; Junior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929.

Councillors:	Term expires
District 1. Ella A. Mead, Greeley.....	1930
District 2. G. P. Lingenfelter, Denver.....	1929
District 3. John R. Espey, Trinidad.....	1928
District 4. W. W. Crook, Glenwood Springs.....	1931
District 5. A. W. Robbins, Durango.....	1932

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, P. C. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, H. A. Smith, Delta.

Denver County—First and third Tuesday of each month; secretary, O. S. Fowler, Denver.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Edgar C. Webb, Canon City.

Garfield County—Last Thursday of each month; secretary, O. F. Clagett, Rifle, Colo.

Huerfano County—Third Thursday of each month; secretary, J. F. Baca, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, F. A. Humphrey, Fort Collins.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, E. H. Peterson, Grand Junction.

Montrose County—First Thursday of each month; secretary, J. A. Spring, Montrose.

Morgan County—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Geo. Sorensen, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. F. Snedec, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, H. W. Averill, Greeley.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Work: J. J. Waring, chairman, Denver; J. B. Hartwell, Colorado Springs; William Senger, Pueblo.

Committee on Local Arrangements: E. D. Downing, chairman, Woodmen; J. A. Sevier, Colorado Springs; W. W. Wasson, Denver.

Committee on Credentials: F. B. Stephenson, chairman, Denver; H. W. Snyder, Denver; F. R. Spencer, Boulder.

Committee on Public Policy: Philip Work, chairman, Denver; Edward Jackson, Denver; C. G. Hickey, Denver; E. A. Bocock, Denver; W. T. H. Baker, Pueblo; P. J. McHugh, Fort Collins; C. A. Ringle, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver (term expires 1928); C. S. Elder, Denver (term expires 1929); W. H. Crisp, Denver (term expires 1928).

Auditing Committee: G. C. Cary, chairman, Grand Junction; O. E. Coleman, Denver; Florence Fezer, Greeley.

Committee on Necrology: W. A. Palmer, chairman, Castle Rock; H. R. Bull, Grand Junction; C. H. Graves, Canon City.

Committee on Medical Education: J. J. Waring, chairman, Denver; Maurice Rees, Denver; L. H. McKinney, Colorado Springs.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; M. Ethel V. Fraser, Denver; C. W. Streamer, Pueblo.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: C. O. Giese, chairman, Colorado Springs (term expires 1928); E. A. Bocock, Denver (term expires 1929); O. S. Fowler, Denver (term expires 1930).

Committee on Military Affairs: John Chase, chairman, Denver; L. M. Van Meter, Denver; E. B. Liddle, Colorado Springs.

Committee on Careers of Members: R. G. Davenport, chairman, Denver; W. K. Reed, Boulder; C. E. Sidwell, Longmont.

Committee to Confer With Boy Scouts: H. S. Canby, chairman, Denver; R. S. Johnston, La Junta; Atwater Douglass, Denver.

Committee on Mental Hygiene: F. G. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; T. R. Love, Denver; C. W. Thompson, Pueblo; T. C. Taylor, Fort Collins; F. W. Lockwood, Fort Morgan.

Committee on Periodic Health Examinations: C. F. Kemper, chairman, Denver; G. H. Curfman, Salida; A. H. Harris, Denver.

Committee on Full-Time Secretary: R. S. Chamberlain, chairman, Denver; B. B. Blotz, Rocky Ford; Jean Gale, Denver; A. J. Nossaman, Pagosa Springs; N. B. Newcomer, Denver.

Committee on Co-operation With the State Pharmacal Association: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.

Curator of Exhibits: E. D. Downing, Woodman.

G. Hickey, Denver; D. H. Coover, Denver; W. T. man, Colorado Springs (term expires 1928); Maurice Rees, Denver (term expires 1929) O. S. Fowler, Denver (term expires 1930).

Committee on Golf Tournament: L. G. Brown, chairman, Colorado Springs; J. R. Arneill, Denver; L. M. Van Meter, Denver.



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NEW BOOKS

The Surgical Clinics of North America (issued serially, one number every other month). Vol. 7, Number 5, (Pacific Coast Surgical Association Number—October, 1927). 266 pages with 132 illustrations. Per Clinic year (February, 1927, to December, 1927), Paper, \$12.00; Cloth, \$16.00, net. Philadelphia and London: W. B. Saunders Company, 1927.

The Medical Clinics of North America (issued serially, one number every other month). Volume XI, Number 111 (Tulane University Number, November, 1927). Octavo of 210 pages with 46 illustrations. Per Clinic year, July, 1927, to May, 1928. Paper, \$12.00; Cloth, \$16.00, net. Philadelphia and London: W. B. Saunders Company, 1927.

Physical Diagnosis: By Charles Phillips Emerson, A.B., M.D., Professor of Medicine, Indiana University School of Medicine; author of Clinical Diagnosis. 324 illustrations. Philadelphia and London: J. B. Lippincott Company. Price, \$7.00.

Physical Diagnosis: By W. D. Rose, M.D., Associate Professor of Medicine in the University of Arkansas, Little Rock, Arkansas. Fifth Edition. Three hundred ten illustrations and three-color plates. St. Louis: The C. V. Mosby Company, 1927. Price, \$10.00.

Neoplastic Diseases. A Treatise on Tumors: By James Ewing, A.M., M.D., Sc.D. Professor of Pathology at Cornell University Medical College, New York City; Pathologist to the Memorial Hospital. Third edition. Revised and enlarged with 546 illustrations. Philadelphia and London: W. B. Saunders Company, 1928.

American Medicine and the People's Health, An Outline with Statistical Data on the Organization of Medicine in the United States with Special Reference to the Adjustment of Medical Service to Social and Economic Change: By Harry H. Moore, Public Health Economist, United States Public Health Service; author of "Public Health in the United States," etc. With an introduction by the Committee of Five of the Washington Conference on the Economic Factors Affecting the Organization of Medicine. D. Appleton and Company: New York and London: 1927. Price, \$5.00.

Troubles We Don't Talk About: By J. F. Montague, M.D., F.A.C.S., of the University and Bellevue Hospital Medical College; lecturer on Rectal Pathology; Fellow, American Medical Association; American Proctologic Society, American Association for the Advancement of Science, American Society for the Control of Cancer, New York Academy of Medicine and New York Pathological Society. Illustrated. Philadelphia, London, Chicago, Montreal: J. B. Lippincott Company. Price, \$2.00.

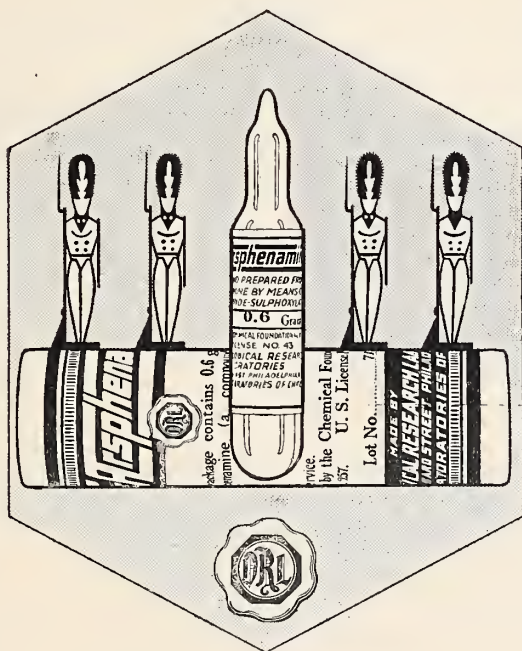
Gynecology for Nurses: By Harry Sturgeon Crossen, M.D., F.A.C.S. Professor of Clinical Gynecology, Washington University Medical School, and Gynecologist in Chief to the Barnes Hospital and the Washington University Dispensary; Gynecologist to the Jewish Hospital, St. John's Hospital and the St. Louis Maternity Hospital; Fellow of the American Gynecological Society and of the American Medical Association. With 365 Engravings, including one color plate. St. Louis: The C. V. Mosby Company, 1927. Price, \$2.75.

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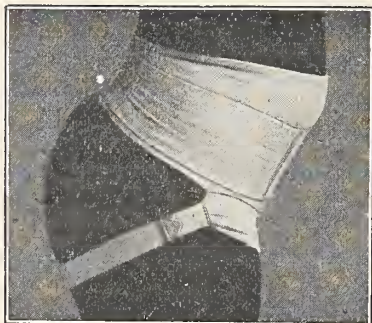
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Bedside Diagnosis: By American authors. Edited by George Blumer, M.D., Clinical Professor of Medicine, Yale University School of Medicine; Attending Physician to the New Haven Hospital. Three Octavo volumes, totaling 2820 pages, containing 890 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, \$30.00 a set. Separate desk index volume free.

Modern Baking Powder, an Effective, Healthful Leavening Agent Including the Occurrence of Aluminum Compounds in Foods and Their Effect on Health: Compiled by Juanita E. Darrah, A.B., 1913, M.S. 1915, University of Illinois; A.M. 1917, Columbia University, Fellow at Johns Hopkins University, School of Public Health, 1920-1921. Formerly Associate Professor, College of Industrial Arts, Denton, Texas, and later Professor and Research Specialist, Florida State College for Women; Author of the Second Edition "Your Children's Food." Distributed by the Research Department of Calumet Baking Powder Company, Chicago, Illinois. The Commonwealth Press, Inc., Chicago, Illinois, 1927. Price, \$1.00.

Bulletin of the Association of American Medical Colleges. Volume 3, Number 1.

The Rockefeller Foundation, International Health Board. Thirteenth Annual Report, 1926.

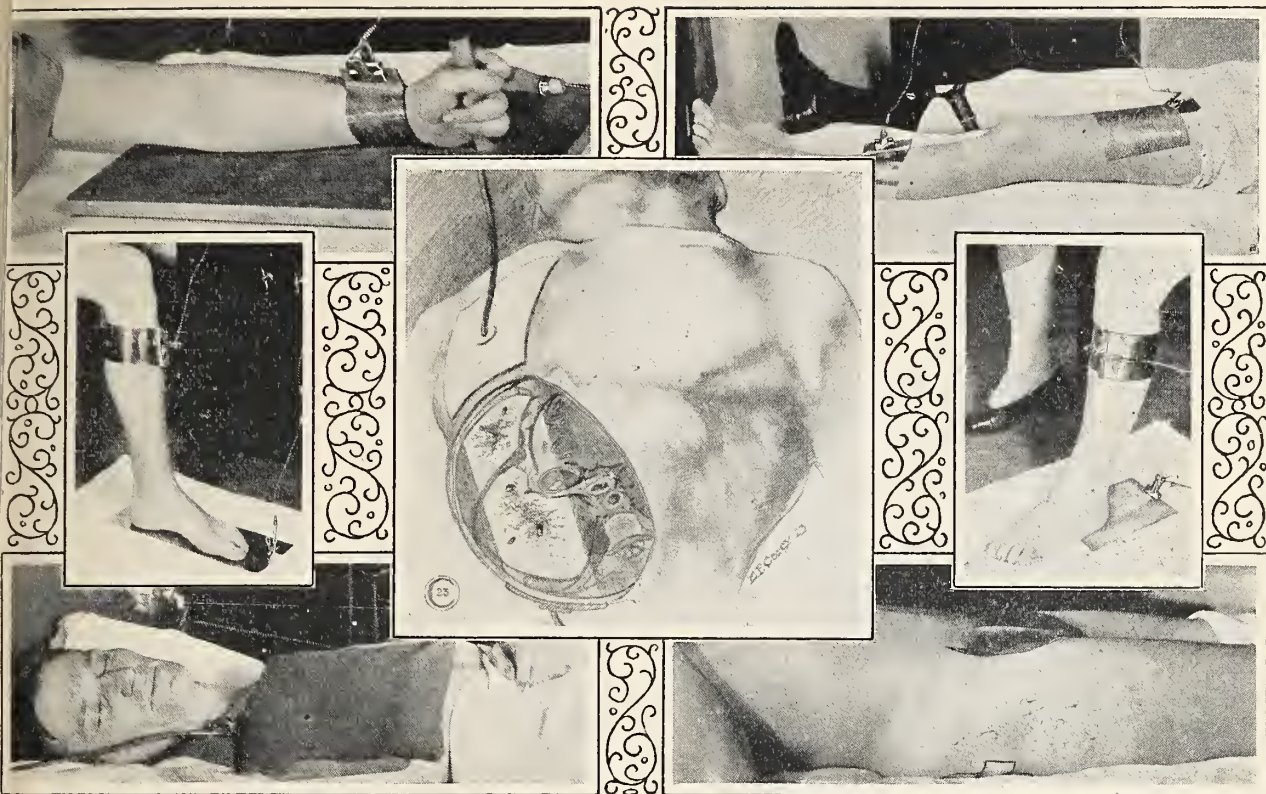
The Medical Clinics of North America (issued serially, one number every other month). Volume 11, Number 4. (Brooklyn Number, January, 1928.) Octavo of 277 pages with 53 illustrations. Per clinic year, July, 1927, to May, 1928. Paper, \$12.00; Cloth, \$16.00, net. Philadelphia and London: W. B. Saunders Company.

The Prevention of Preventable Orthopedic Defects, with Special Reference to the Spine and the Feet: By S. C. Woldenberg, B.Sc., M.D., M.Sc. Attending Orthopedist Post Graduate Hospital and Michael Reese Dispensary, Chicago, Ill.; formerly in charge of the Orthopedic Service, U. S. Veterans' Bureau, Saint Paul and Minneapolis: Bruce Publishing Company, 1927.

Crawford W. Long and the Discovery of Ether Anesthesia: By Francis Long Taylor, with a foreword by Francis R. Packard, M.D. With eight full-page plates. New York: Paul B. Hoeber, Inc., 1928. Price, \$4.00.

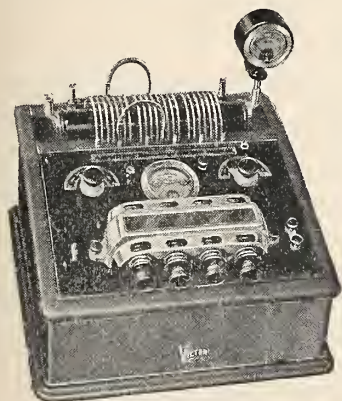
The Peaks of Medical History, An Outline of the Evolution of Medicine for the Use of Medical Students and Practitioners: By Charles L. Dana, A.M., M.D., LL.D., Professor of Nervous Diseases, Cornell University Medical College, ex-President of the New York Academy of Medicine, etc. Illustrated with 43 full-page plates and 16 text illustrations. Second edition. New York: Paul B. Hoeber, 1928. Price, \$3.00.

Pathological Physiology of Internal Diseases, Functional Pathology: By Albion Walter Hewlett, M.D., B.S., formerly Professor of Medicine, Stanford Medical School, Professor of Internal Medicine and Director of Clinical Laboratory, University of Michigan. Revised in memoriam by his colleagues, Thomas Addis, M.B., Ch.B., M.D.; George DeForest Barnett, A.B., A. M., M.D.; Walter Whitney Boardman, M.D.; Ernest Charles Dickson, A. B., M.B., M.D.; Henry George Mehrtens, B.S., M.D.; William Ophius, M.D.; Jay Marion Read, B.S., M.S., M.D.; Howard Frank West, A.B., M.D.; Harry Alphonso Wyckoff, A.B., M.D. Under the editorial supervision of George DeForest Barnett. With one hundred and sixty-four illustrations in text. New York and London: D. Appleton and Company.



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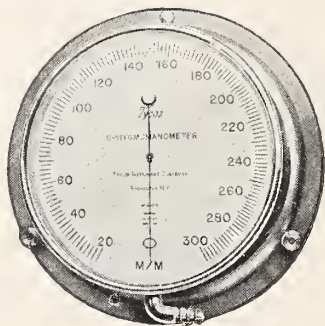
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Lung Conditions Caused By Fungi

Castellani emphasizes the importance and comparative frequency of bronchomycoses in infection of the lung by various fungi, a considerable number of which have been identified. There are certain symptoms common to all bronchomycoses. In mild cases, symptoms of slight bronchitis with muco-purulent expectoration are found. The severe cases present symptoms of phthisis with hectic fever and hemorrhagic expectoration. The diagnosis is based on the absence of tubercle bacilli and the constant presence of the responsible fungus. The prognosis varies according to the causative fungus. Most cases are benefited by the administration of potassium iodide.

The article describes and pictures the various fungi and discusses the symptomatology, diagnosis and treatment of each form of infection. The author believes that the subject deserves more attention, since the condition is not very rare, even in temperate climates, and since a cure can be obtained if accurately diagnosed.—Notes on Certain Bronchomycoses Which May Simulate Pulmonary Tuberculosis, Aldo Castellani, Amer. Rev. of Tuber., Nov., 1927.

Septic Infections of the Lungs

Septic infections of the lungs and bronchi are often mistakenly diagnosed as tuberculosis. Their course is very variable, but they are usually progressive, chronic, damaging, debilitating, distressing and, not infrequently, fatal. Bronchiectasis is not an uncommon condition. These infections are characterized by chronic cough; expectoration profuse and foul smelling in the late stages; dyspnea; pain in the chest and, after the disease is well established, weakness and loss of weight. Pleurisy is less common. The lesion is usually basal (in contrast to tuberculosis, in which early lesion is generally apical).

The most troublesome of them can be traced back, sometimes many years, to pertussis, influenza or broncho-pneumonia, or to sinus infections, tonsillitis or bronchitis. Perhaps broncho-pneumonia is the essential factor. Bad teeth, tonsils and mouth conditions generally are fairly constant factors, likely causal. Certain spirochetes and fusiform bacilli found in the mouth seem to be among the specific causes.

Bronchiectatic cavities are not well shown by the ordinary x-ray plate, but iodized oil, placed in the trachea, coats the walls of cavities, if emptied of secretions, and brings the outlines out sharply.

Rest in bed and drainage by posture or perhaps by the bronchoscope are useful in the early stages. Since spirochetes are implicated, neo-salvarsan has been used and successes reported. For the intermediate stage, collapse of the lung by pneumothorax, phrenicotomy or thoracoplasty should be considered. The late stages call for desperate treatment, such as destruction of the diseased lobe by cautery.—Septic Infections of Lungs and Bronchi, David A. Stewart, Can. Med. Assn. Jour., 1927, XVII.

Fund for the Study of Infantile Paralysis

An anonymous friend of the University of Colorado has promised \$5,000 a year during his life and a fund of \$100,000 by his will to be devoted to the prevention and cure of infantile paralysis. The fund, however, may be diverted to combat any serious epidemic which threatens the lives of the children of the state.—Children's Bureau.

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Physicians who are interested in this subject matter will find it presented in a rational manner in a pamphlet entitled "*Constipation in Infancy*", a copy of which will be mailed promptly upon request.

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Assails "Stop Watch" Education

"Stop watch" methods in the promotion of educational efficiency in the schools is severely condemned as detrimental to the mental health of the child by Dr. Garry Cleveland Myers of Western Reserve University in the current number of *Mental Hygiene*, quarterly journal of the national committee for mental hygiene. School psychologists with their multiplicity of mental tests, the curriculum expert who adds more and more new things to be learned by the child, textbook writers who build their books for pupils around the stop watch, teachers and supervisors, all come in for drastic criticism in Dr. Myers' discussion of the evils of overemphasis on the time factor in school instruction. "The 'efficiency' movement," says Dr. Myers, "is gathering a momentum that seems to be almost irresistible. The psychiatrist is confronted by concrete evidences. Parents are beginning to express themselves. Within a few years they are going to register a very vigorous protest. But educational writers still are almost wholly on one side. They practically all are speed propagandists, and they are practically the only ones who can correct the difficulty."—The National Committee for Mental Hygiene.

Public Warned to Guard Against Tularemia

Tularemia, a serious and often fatal disease known also as "rabbit fever" or "deer-fly fever," has spread so widely that Paul G. Redington, chief of the Biological Survey of the United States Department of Agriculture, has issued a warning to all field men of the department to be on guard against it. The department is making public this warning for the benefit of sportsmen, lumbermen, cattle and sheep tenders, farmers and others of the general public who may come in contact with the disease. Mr. Redington's warning has been endorsed by the United Public Health Service.—U. S. Department of Agriculture.

International Child Welfare

Through a board of inquiry, upon which Dr. F. Humbert represents the League of Red Cross societies, an investigation of the physical and mental effects of recreation is under way in ten countries. The subject of child welfare is receiving an ever broadening attention in Europe particularly, and there is a deep interest in the problem. The inquiry will confine itself to open-air recreation in the cities because of certain limitations, with the hope of having a very comprehensive report ready for presentation next year to the assembly of the League of Nations.

The investigation is to embrace Argentine, Belgium, Czechoslovakia, Denmark, France, Germany, Great Britain, Japan, Switzerland and the United States. The report of the committee upon the result of its inquiries will no doubt be of great value in the realm of child welfare, and particularly to organizations such as the Junior Red Cross.—The Red Cross Courier.

On Being Ourselves

There is a time in every man's education when he arrives at the conviction that envy is ignorance; that imitation is suicide; that he must take himself for better or for worse, as his portion; that though the wide universe is full of good, no kernel of nourishing corn can come to him but through his toil bestowed on that plat of ground which is given to him to till. The power which resides in him is new in nature, and none but he knows what that is which he can do, nor does he know until he has tried. —Emerson.

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EDITORIAL NOTES AND COMMENT

TETANY

It is a common occurrence, in answer to an emergency call, to find a patient in spasms of so-called hysterical convulsions. Frequently such a patient manifests hyperpnoea and sometimes a rather characteristic carpopedal spasm. The lowly diagnosis of hysteria is made and the family is placated by a brief dissertation on functional diseases. If only the malady could be exalted to the plane of an organic disease, both family and physician would be comforted.

In 1920 Grant and Goldman demonstrated that they were able to produce tetany in themselves by forced breathing for fifteen to sixty minutes. They were thus able to increase the carbon dioxide combining power in the blood and change the reaction of the urine from acid to alkaline. This experiment has been more recently confirmed and amplified by Barker and Sprunt. This voluntary type of hyperpnoeic tetany is believed to be due to the excessive pumping off of the volatile carbon dioxide and thus creating a condition of alkalosis. A half century ago Kussmaul noted the identical symptoms of tetany occurring following gastric dilatation with its attending vomiting. More recently it has been shown that the elimination of stomach acids for any cause, if continued long enough, will produce an alkalosis, and the classic symptom of carpopedal spasm and the phenomena of Erb, Trousseau and Chvostek can frequently be demonstrated. The same condition has been observed following excessive alkali therapy and both yield to acid medication in a gratifying way.

Another organic basis for tetany is the

reduction of the calcium content of the blood. Clinically this type is recognized as occurring at times in spasmophilia and rickets, pregnancy and lactation, cretinism and exophthalmic goiter, and following thyroidectomies. It sometimes occurs idiopathically. The common denominator of these clinical entities seems to be hypocalcemia, due to hypoparathyroidism for which intravenous calcium or the parathyroid hormone of Collip is a near specific.

Out of the welter of theories and investigations there seem to be established two organic reasons for the syndrome of tetany, viz., alkalosis and hypocalcemia. From complexity there has come an explanation approximating unity. It would be even more satisfying if some particular and as yet undetermined relationship of these organic salts or some third unknown factor governing the two could be shown to be provocative of tetany, thus rendering the cause single rather than dual. Whether or not such unity exists, only time can tell.

As in other clinical entities we here look for the full blown symptom complex. Obviously there must exist many borderline or pretetany conditions attended by mild alkalosis or slight hypocalcemia. With this in mind clinicians might well search for larval signs and symptoms of tetany in patients of certain functional disorders of the neuromuscular system. A determination of the blood calcium or carbon dioxide combining power might frequently prove helpful. Thus perchance some despised functional disorder might now and then take its place among the enshrined organics of medicine.

UNNECESSARY TESTS

A pathologist in charge of an accredited clinical laboratory remarked that probably half of the examinations such laboratories are asked to make are valueless or unnecessary. Perhaps he could as truthfully have said that in half of the occasions where laboratory study is needed, it, for some reason or another, is not secured. We make no contention for the accuracy of these assertions. We are convinced, however, that many unnecessary clinical tests are frequently requested. This state of affairs is due, at least in part, to the rapid and recent development of such clinical procedures, the significance and limitations of which are not generally enough known. A case in point is blood chemistry. It is not unusual to learn of repeated requests for all of the nitrogen retention products in renal insufficiency. While this may be necessary for teaching purposes, it has little to offer the careful attending physician. As Christian pointed out, several years ago, when the creatinin is 5 to 10 mgs., other retention products and clinical symptoms are almost always comparable. An occasional non protein or urea nitrogen is usually sufficient. This, even, may be determined with remarkable accuracy by means of the simple Hench test for salivary urea. Similarly an enormous amount of needless effort is wasted in quest of blood sugar levels. While it is true that glycosuria is always an indication for a diagnostic blood sugar determination, it is difficult to justify the periodic repetition of the test, save for the physician's experience. When that is acquired, such requests become less and less frequent. Joslin has expressed himself quite satisfied if the urine is kept sugar free.

"Selling" a patient these and other laboratory tests may be excused if the motive is fathered by inexperience. But when such becomes the fixed policy of a mature physician, it smacks of the impressionistic tactics of our cultist friends.

FINDING FAULT

None, none descends unto himself to find
The secret imperfections of his mind,
But every one is eagle-eyed to see

Another's faults, and his deformity.
—Dryden.

Any individual might have a false notion about his friends, and people in general, if he knew what was said behind his back; at times he would glow with self esteem, while at others he would awaken under a miserable sense of apprehension.

It is far better to see one of our own faults than to find ten in someone else. There is always something good in everything and everybody, and can be seen if we only make the effort to look for it. Unfortunately we often find only fault when we could find praise.

True worth is not exemplified in finding the deficiencies of others; we are more likely to attain it turning away from fault-finding, than indulging in an unprofessional triumph over it. The truly great men in our profession do not seek the imperfections of others, nor do they fear contamination by coming in contact with some of the younger men, or lesser lights in medicine. They are usually free from all the petty ideas of finding fault.

Finding fault in any one cannot be justified by saying that it is true, for if the man who takes that position would consider, he would realize what a miserable person he would be, if all the things that were true of him were made into a scourge, and imposed upon him. He does not use all the truth; he knows not the law of human kindness; he has no desire to please his fellow-man, but on the other hand seems to enjoy inflicting injury by "a little story that he has picked up," and leagued with his exertions are envious, jealous, and revengeful acts. But by the rules of justice, no one should find fault with another for his imperfections.

"If thou would'st bear thy neighbor's faults,
Cast thy eyes upon thy own."

Remember this: "A yellow mongrel that brings a bone, will usually carry one away." One who comes to you with the faults of others will tell others of your faults, and the one who first finds fault is often the last who will forgive. The truly great men of our profession look upon every act of finding fault as being degrading and demoralizing.

Lastly: "The eye that sees all things sees not itself."
N. M.

HUMAN TETANUS IN COLORADO

IVAN C. HALL, M.D.
DENVER

Department of Bacteriology and Public Health, University of Colorado School of Medicine

While tetanus bulked large among the infectious causes of death during the early days of the World War before tetanus antitoxin in sufficient quantity could be supplied, it is relatively uncommon in civil populations. Still there are enough cases to remind one occasionally of its constant menace, and to prove that the prophylactic use of tetanus antitoxin in deep, lacerated wounds should not be overlooked.

The principal incentive for writing this article grew out of the fact that I have several times during the past three years heard the suggestion that the probability of tetanic infection is slight in Colorado and that one is not running much risk in refusing to use tetanus antitoxin prophylactically in wounds. That this view is unworthy and certainly not representative of the medical profession as a whole goes without saying, for the available statistics prove beyond question the danger of tetanus in Colorado as anywhere else.

But tetanus has received little attention in Colorado; there was only one reference to this disease in "Colorado Medicine" during the past twenty years and that a brief abstract of an article published elsewhere. Yet the world's literature on tetanus alone runs into hundreds of titles.

My own interest in tetanus began some sixteen years ago in the first tetanus antitoxin laboratory in the western United States for the establishment of which I was responsible, beginning May 1, 1912, to the Cutter Biological Laboratories in Berkeley, California. During the succeeding interval there have been some notable changes in our scientific conceptions of the biology of the tetanus bacillus, e. g., first, its failure to ferment carbohydrates, indicating that the culture which we first used¹ was really contaminated with some other obligate anaerobe; second, the differentiation of tetanus bacilli into numerous serologic agglutination groups; third, the wide spread occurrence of *B. tetani* in the intestinal tract of man

and animals; fourth, the natural immunization of tetanus carriers as indicated by the frequent occurrence of antitoxin and agglutins for this organism in the blood stream. There is practically no longer any doubt but that this immunity is responsible for the comparative infrequency of tetanus following deep, lacerated wounds and intestinal operations. When tetanus occurs it probably indicates a break-down in a given individual of a protective mechanism which often prevents this disease.

Although I have studied tetanus in experimental animals for about sixteen years, it was not until 1922 that I saw my first case of human tetanus. An Italian boy, 19 years old, in Oakland, California, had shot himself in the palm of the hand with a blank cartridge from a .22 caliber rifle on Halloween Eve. The wadding was not even removed from the shallow wound. On the seventh day he developed tetanus, and was taken to the Alameda County Hospital where the wound was first cleaned, but a total of 100,000 units of tetanus antitoxin failed to save his life and he died the tenth day. Prompt surgical care and 1,000 units of tetanus antitoxin would almost surely have prevented his death.

Bacteriological study of the wadding of the blank cartridge, removed from the wound at the hospital, and of swabbings from the wound itself after antiseptic treatment had begun, convinced me of the difficulty of always making a satisfactory bacteriologic diagnosis in an undoubted case of tetanus. I was never able to recover the tetanus bacillus or even to find toxicologic evidence of its presence in mixed cultures, though I did recover *B. sporogenes* (216), *B. putrificus* (220), and *Bact. coli* (224). The morphologic and cultural resemblance of *B. putrificus* and *B. tetani* is so striking that I was confident of success until the toxicity tests were made. This experience convinced me that it is impossible to place

any reliance solely in microscopic identification of the tetanus bacillus.

The Occurrence of Tetanus in Colorado

Unfortunately our Colorado State Board of Health records do not offer much data upon which to form a judgment as to the prevalence of tetanus in this state, since tetanus has been segregated as a distinct cause of death since 1924 only. But records on file in the Denver City and County Board of Health offices show that twelve deaths have occurred in Denver from tetanus during the years 1916-1926, inclusive.

In studying death certificates one is always impressed with the possibility of errors in diagnosis, but the reliability of the mortality statistics for tetanus is probably higher than in many other diseases, owing to the characteristic symptoms which make diagnosis fairly certain, in spite of the frequently noted failures to isolate the causative organism. An exception is the possible confusion between tetany in small infants due to parathyroid deficiency or other causes, and tetanus neonatorum due to infection of the umbilicus. Several deaths of infants attributed to tetany might have been due to true tetanus, but these were not included in this study. We have no definite evidence of tetanus neonatorum in Colorado.

There were three authentic cases of tetanus recorded in Colorado in 1924, seven in 1925, and five in 1926. The 1927 figures are not yet available. I wrote to all of the attending physicians of the fatal cases to secure, if possible, data as to the prompt reporting of accident to physician, period of incubation following accident, duration of symptoms pending death, use of antitoxin, time and quantity. The replies were then incorporated in the case reports. Except when otherwise stated, the case numbers refer to the death certificates on file in the State Board of Health. With a few exceptions, the response to our inquiries has been generally prompt and cordial.

CASES IN 1924

No. 7410. August 12, 1924, a boy 12 years old died from tetanus in a Denver hospital, having suffered for three weeks with an infection in the foot contracted on a farm near Golden. No further details could be secured except that the boy was in the hospital only three days before he died.

No. 8215. August 12, 1924, J. C. M., a boy 8 years old died from tetanus in Eaton, Colorado. He had burned his fingers on August 1. The wounds were dressed two or three times by a physician and then left in care of the parents. On the 10th day symptoms of tetanus appeared and another physician was called, who immediately gave 30 cc. of tetanus antitoxin and later 30 cc. more. The number of antitoxin units and the route of administration were not stated. Death occurred thirty-three hours after the onset of the symptoms. No doubt the fingers of this child became infected through carelessness on the part of the parents after the first physician had released the case. Tetanus is not a very common complication following burns and one would rarely be justified in using tetanus antitoxin prophylactically. The disease was already too far progressed when the second physician was called.

The last case in 1924 was one in which recovery occurred at the Denver General Hospital.

Hospital No. 3892. August 15, 1924, C. V., a white male laborer, aged 32, was admitted with a history of having stepped on a rusty nail about three weeks before, the nail penetrating the sole of his left foot. He thought nothing of this accident at the time, but the day before coming to the hospital, he noticed a slight twitching and on admission complained of painful contractions of the left leg.

The plantar surface of the left foot was at once incised and 5,000 units of tetanus antitoxin were given intraspinally. Later the same day 1,500 units more were given. August 16, 10,000 units were given intravenously, August 17, 10,000 units intramuscularly and August 18, 10,000 units (method not stated). This patient was discharged from the hospital cured August 24.

CASES IN 1925

No. 959. January 8, 1925, a man 65 years of age died of tetanus in Pueblo. He had frozen his feet on December 28, 1924. On January 7, 1925, he developed tetanic convulsions, notified a physician and was immediately given 5,000 units of tetanus antitoxin intraspinally. He died on the following day.

No. 1965. February 16, 1925, L. F., a man 43 years of age died from tetanus in Loveland. On January 30, 1925, he was attended for influenza. In a few days he was up and around. On February 9th the physician was called during the night and found that he had developed pneumonia. There were no unusual complications until February 15th, when the physician was again called in the night and found well developed symptoms of tetanus. His jaws were set and he was suffering considerable pain. No history of injury could be ascertained. He was given two inoculations of tetanus antitoxin, 5,000 units each time, the first on the 15th and the second the following day, which was the day of his death.

Such cases are rare; there was none following any respiratory disease among the 290 reviewed by Moschcowitz², but Brown-ing³ recorded an instance in which B. tetani was recovered from a lung abscess in a man who died of tetanus while convalescing from pneumonia.

No. 4063. April 17, 1925, A. W., a white girl aged 10 died of tetanus in Sterling following a wound upon the foot which became infected. The

attending physician has since died and no further details could be secured.

No. 4857. May 11, 1925, D. F., a boy 4 years old died from tetanus in Colorado Springs. On April 25th he had run a splinter into his foot; he was taken to a doctor to have the splinter removed, but it was stated afterward that the instruments used were not sterilized and the wound refused to heal. On May 2nd he was brought to a second physician, who supplied the information here given. Three days later the foot was again lanced about $2\frac{1}{2}$ inches under general anaesthesia and an additional piece of splinter overlooked in the first operation was removed, the wound being then cleansed thoroughly with iodine and alcohol and dressed with mercurochrome, "but the tissue around the splinter seemed to be of low quality, dark in color, which resembled a moist gangrene." The twitching and the convulsions disappeared, but the child was not doing well. May 10th, a third physician was called into consultation. "The foot was swollen about to the knee. There seemed to be a moist gangrene as there was no pain on manipulation." Cultures were taken but we have no record of the bacteriologic findings. The foot was again opened, making a through and through opening between the metatarsal bones and from toes to heel, leaving the wound wide open. He was also given mercurochrome intravenously. He died on the following day, May 11th, in convulsions.

The physician in charge at the end was uncertain as to the diagnosis of tetanus and regarded it as complicated by a mixed infection. Bacteriologic work was done but failed to throw any light upon the case, possibly owing to lack of familiarity on the part of the bacteriologist with anaerobic methods. This case certainly serves as an excellent example of bungling on the part of the first physician who erred in at least two important procedures; first, his failure to remove all of the offending splinter; and second, his failure to use tetanus antitoxin prophylactically.

No. 6775. July 7, 1925, a young man aged 19 years, 8 months, died from tetanus at Colorado Springs, nineteen days following an operation for acute appendicitis. The following very interesting and complete abstract of the case history was supplied by the physician who referred the case to the surgeon for appendectomy.

"W. B., 20, single, farm hand. Family history negative. Previous history negative. Present illness: June 19, 1925, developed discomfort in epigastrium with sensation of nausea but no vomiting. No fever. Given laxative by employer. Felt better during the afternoon. June 20th pain shifted to right lower quadrant. Temperature at noon 99.2. Nausea but no vomiting. Tenderness limited to McBurney's point. Marked **spasm**. Present examination entirely negative except for **rigidity** in right lower quadrant of abdomen. Operated at 4 p. m., June 20, 1925. No untoward symptoms until June 25th, when at noon complained of slight neck ache. Temperature and pulse normal. Appetite good. Digestion normal. About 6:30 p. m., the nurse noticed retraction of head. Pulse and temperature normal. No alteration of reflexes except marked rigidity and retraction of neck. At 7 p. m., condition much more

marked with a temperature of 102.4. Diagnosis of tetanus, post-operative. Patient received 28,000 units tetanus antitoxin that night. June 26, given 20,000 units intravenously and 5,000 intraspinally. June 27, 10,000 units intravenously and 5,000 units intraspinally. June 30, definite improvement; 5,000 units intramuscularly. July 1, 5,000 units intramuscularly. June 30, abdominal incision opened with drainage of one ounce purulent material having foul odor. June 30, 10,000 units intramuscularly. July 7, 5,000 units intramuscularly. Patient expired at 2 p. m., July 7th. Very few convulsions during last ten days of life. Symptoms appeared five days after original operation. Death occurred fourteen days after onset of symptoms. Total amount of antitoxin administered 88,000 units."

The attending physicians were unable to cultivate the bacilli from the abdominal wound and no post mortem examination was permitted. The appendix removed was gangrenous and also showed signs of previous chronic inflammation. Since this man's occupation exposed him to horses, it was felt that the infection probably arose from the intestinal tract.

Post-operative tetanus has been ascribed by Jaffe⁴ and Patton⁵ to infected catgut, but in the case described by Jaffe it was impossible to identify the cultures suspected of containing bacillus tetani, for lack of authorization to conduct experiments upon animals—a complete victory for the anti-vivisectionists as he pointed out! Patton's argument also lacked conclusive bacteriological evidence and seemed to be based mainly upon the statement that there was no record of tetanus complicating typhoid fever. Huggins⁶ on the contrary has urged the intestines as the more likely source of postoperative tetanus and observed that there have been very few, if any cases of tetanus definitely traced to catgut. Huggins emphasized the danger from tetanus in all operations involving the lower bowel or its adnexa and suggested that since the Surgeon General of the United States during the late war ordered a prophylactic dose of tetanic antitoxin given before all rectal operation, this procedure may in time become routine. It would be interesting to know how many cases of tetanus have followed appendectomies.

No. 8296. August 16, 1925, E. E. C., a man 26 years of age died from tetanus in Wray. There is no record of the contributing cause, and neither of two letters addressed to the physician in charge elicited any reply.

No. 11152. November 11, 1925, a man 20 years of age died from tetanus in Akron. He had run a splinter into his finger at his home about twenty five miles from Akron. The splinter had been removed and the wound dressed by a physician about October 30th. November 6th, a second physician, who supplied this information, was

called. The patient had considerable fever, with chills, and convulsive muscular movements. The jaws were locked and could not be opened. He was immediately brought to Akron, anaesthetized and examined for dental trouble with negative results. The wound from the splinter has apparently healed, but it was re-opened and cleaned. He was given tetanus antitoxin, mostly intramuscularly, as follows:

Nov. 6	1,500 units
" 7	3,000 "
" 8	40,000 "
" 11	10,000 "
<hr/>	
	54,500 units

The doctor stated that he would have given more antitoxin if it had been available. The tetanic convulsions continued, though with less severity, but gradual collapse came on with intense perspiration, but little pain.

Prophylactic use of tetanus antitoxin would probably have saved this man's life.

CASES IN 1926

No. 6940a. July 28, 1926, L. M. D., a white woman, aged 31 years, died from tetanus in Ovid. The death certificate stated that the infection was "probably caused from blood poisoning caused by a scratch on the hand." The patient was under a physician's treatment only one day before she died, but no further details could be secured.

No. —. In September, 1926, a case of tetanus was successfully treated in Denver by Dr. R. W. Arndt and Dr. M. C. Petersen, but this case is not included in our statistics because it was acquired outside of Colorado.

About September 5th, T. H. B., a white male, aged 47, stepped on a nail in Colby, Kansas. Although trismus began to develop about five days later, a physician was not called until the seventh day, when an unrecorded amount of tetanus antitoxin was administered intramuscularly.

The patient was then brought to Denver and on September 15th Dr. Arndt injected 3,000 units, and on September 16, 2,000 units intravenously. On September 17th, and again September 18th, Dr. Petersen injected 20,000 units into the cisterna magna. Thus a total of more than 45,000 units was used.

Supporting treatments with luminal, chloretone, and magnesium sulphate were also used, and the patient made an uneventful recovery.

No. 9811. October 19, 1926, A. B., an Italian boy of 12 years died in Walsenburg from tetanus, having mashed the third toe on his right foot. He was seen for the first time only the day before he died, but the attending physician has probably moved as our letter of inquiry for details was unclaimed.

No. 11034. December 5, 1926, J. B., a boy of 7 years, died in a Denver hospital from a disease of undetermined character, but strongly suggestive of tetanus.

The patient was admitted November 27, 1926, for emergency treatment, having fallen off of a truck and injured his left arm. The physical examination was negative except for an enlarged heart extending past the nipple line, with a systolic mitral murmur transmitted to the left axilla, enlarged but not inflamed tonsils, right inguinal hernia, and a moderate anterior and posterior deformity in middle of left forearm, this area being slightly swollen and very tender, with definite crepitus on motion. There was a **small puncture wound** on the anterior surface of the forearm slightly below the deformity. X-ray pictures confirmed the diagnosis of fracture, showing a transverse break in both bones of the left forearm in

the middle third with anterior displacement of both upper fragments.

The wound was treated with mercurochrome, the fracture reduced and anterior and posterior splints applied. A second x-ray showed poor position of the bones, but the patient was sent home and told to return to the fracture clinic.

November 29th, the patient returned to the fracture clinic and was advised to return on the following day for a further attempt to reduce the fracture under general anaesthetic.

November 30th, the patient returned to the hospital, but seemed to have a cold and so was told to go home and return the following Thursday.

December 2nd, the patient was re-admitted, and December 3rd, under ether anaesthetic, the splints were removed, revealing an infected wound in the forearm. The arm was manipulated in an attempt to reduce the fracture, and redressed. The post-operative condition seemed all right.

December 4th, the patient was early, **complaining of backache and headache** and was unable to bend or move his head. When examined at 9 a. m., by the physician in charge, he was conscious, with the head slightly retracted. The muscles in all extremities were somewhat hyper-tonic and showed distinct passive resistance. Although the mouth was opened with difficulty, there was no marked trismus. Kernig's sign was positive. Percussion of the head showed a slight increase of ventricular distension, more on the left side. Both knee jerks were present and equal. Ankle clonus, right and left, was absent. Both Achillean reflexes were prompt. The right plantar reflex inclined to extension, the left to flexion. The abdominal reflexes were active. There was a general cutaneous hyperaesthesia. Pupils measured 3 mm., and were circular; there was no nystagmus but a slight divergence was noted.

These clinical findings led to a tentative diagnosis of meningitis whereupon a lumbar puncture was made, but the fluid was not under pressure, and was perfectly clear. A culture was made but the result was not recorded. A blood count showed 7,200 white cells, 52 per cent lymphocytes, 48 per cent polymorphonuclear leucocytes. No evidence of meningitis being found, it was decided to administer tetanus antitoxin, which was done as follows:

Dec. 4, 12:45 p. m., 10,000 units intramuscularly
1:30 p. m., 5,000 units intravenously

At 4 p. m. the patient was having severe muscular contraction and severe pain. The temperature had ranged from 99.6° at 6 a. m. to 100.° at 8 p. m. The muscular spasms and pain continued through the night. At 6 a. m., December 5th, the temperature was 106° and the boy died at 9:15 a. m.

I did not see this case, but now that the history is complete (except for bacteriological examination of the wound), I am willing to believe that it was really a case of tetanus. It might not have been so easy to reach this conclusion early in its progress, but I do believe that tetanus antitoxin should be administered prophylactically in all compound fractures with puncture wounds. The day is perhaps not far distant when polyvalent antisera for all of the principal wound infections will be so used. It may be that the suspected cold on the third day in the

above case was a preliminary symptom of the oncoming tetanus, and almost certainly the backache, headache, and stiffness of the neck of December 4th were tetanic in nature, but the case history suggests that the possibility of tetanus was only considered after the laboratory failed to confirm the diagnosis of meningitis. By that time the small amount of tetanic antiserum given could not possibly alter the course of the disease.

No. 11,176. December 14, 1926, G. L. K., a white male, aged 48, died from tetanus in a Denver hospital. This case is of very special interest because:

1st. Tetanus developed subsequent to a supposedly successful amputation;

2nd. The symptoms of the disease were interpreted as hysteria or malingering; and

3rd. *B. tetani* was isolated from the site of operation, following the death of the patient.

The patient was first admitted to the hospital November 29, 1926, having two days previously crushed the middle finger of his left hand in a meat chopper. The distal phalanx was immediately removed under anaesthesia, bleeding vessels tied with catgut, and a flap of skin closed over the wound with "dermal." The condition of the patient following the operation was good. He remained in the hospital over night and was discharged November 30, 1926.

December 8, 1926, he was re-admitted, complaining of stiffness of the face and neck, and of difficulty in swallowing (dysphagia). On examination it was found that the posterior muscles of the neck were not stiff, but all the anterior muscles of the neck, pharynx and tongue were tender. There was no muscular soreness of the extremities. All of the deep reflexes were present and bilaterally equal. There was advanced pyorrhoea and a diagnosis was made of acute follicular tonsillitis. Salicylates were recommended but not administered that day. The case history states that the doctor "raised cane" because his instructions were not followed. An alcohol dressing was placed on the operated finger, but otherwise little attention was given to it.

On December 9, the patient was unable to open his mouth farther than to admit the tongue blade. The tongue was bleeding. A specialist was unable to see the tonsils, but the pharynx revealed no inflammation. The case history makes no statement regarding the suspected hysteria or malingering, but hospital attendants stated that the patient was visibly agitated when anyone was in the room, and showed twitching of the facial muscles which were interpreted as "making faces." No such phenomena occurred when the patient was observed through the key hole.

A provisional diagnosis of tetanus appears to have been made late December 9th, when he was given 8,000 units of tetanus antitoxin intravenously. Codein sulphate was also administered.

On December 10th, his condition was unchanged except that the temperature which hitherto had been normal ranged from 99° to 101° F. An additional 8,000 units of tetanus antitoxin were administered.

On December 11th, the temperature was 102° F.; on December 12, 103° F.; on December 13, 103° F.

On December 14th, the temperature was still at 103° F., and the patient was in extremis, and a blood culture was suggested (!) but there is no record that it was taken.

Autopsy was performed by Dr. E. R. Murgage; the general findings were of no significance, but the operated finger was carefully removed in sterile gauze and delivered to the writer.

The finger was deeply stained reddish brown, suggesting iodine or mercurochrome, and the end was covered with a tightly adherent brown scab. This was removed with sterile forceps and scissors and cut into two pieces which were dropped into glucose broth in constricted tubes with chopped meat. Underneath the scab was an area of purulent necrosis exposing the bone of the finger.

Smears from the pus showed numerous polymorphonuclear leucocytes, Gram positive cocci, and a few Gram positive rods without spores.

It is unnecessary to describe in detail the bacteriologic procedures followed as these are well known to bacteriologists familiar with anaerobic technic. Suffice it to say that *Staphylococcus aureus*, *Bact. proteus*, and *Bacillus tetani* were recovered from the scab. This strain of tetanus bacillus (No. 1170) is in every respect typical, morphologically, culturally and toxigenically. Inoculations of glucose broth cultures into guinea pigs always reproduce the symptoms of tetanus when the doses are sufficiently reduced, say to .001 cc. or .0001 cc.

This case again emphasizes the necessity of recognizing pain and muscular tension as early premonitory signs of tetanus.

No. 11,242. December 5, 1926, F. M., a white male, aged 37, died from tetanus in a Denver hospital. A compound fracture of the forearm due to falling from a ladder was contributory. The patient was under a physician's care three days before he died, but neither the hospital nor the physician would divulge any further details as to this case.

The recital of these cases impresses one with the necessity of using tetanus antitoxin as a prophylactic in suspicious wounds in this state as elsewhere.

The really weak point in all our dealing with tetanus lies in the difficulty of educating the layman to the necessity of reporting deep wounds to a physician for treatment. I believe there are very few physicians who would hesitate to use tetanus antitoxin prophylactically when it is clearly indicated. Failure to do so should be considered malpractice! Unfortunately most of the cases do not come to the doctor's attention until it is too late. Meyer⁷ analyzed 148 cases that occurred in California during four years (1922 to 1925, inclusively) and pointed out that the majority of patients had never consulted a physician, but at least five physicians failed to use antitoxin.

(To be concluded in next issue)

ANGINA ABDOMINALIS

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Abdominal pain and its interpretation is always an interesting subject in internal medicine. The subject never grows old, nor can it be said that the subject has been fully analyzed and filed away in medical archives. Every new diagnostic agent that is developed renders available finer methods for the interpretation of pain, both in the abdomen and elsewhere, and undoubtedly this status will continue for some time. The list of causes of abdominal pain is long and varied and ranges from acute appendicitis through lead colic to syphilis of the central nervous system. A discussion of the common causes of abdominal pain can be found in any of numerous good textbooks. However, it is with one of the less commonly discussed types that this paper is concerned; namely, pain in the abdomen apparently arising from the cardiovascular system. Whether the term "angina abdominalis" is the best name to identify the clinical syndrome to be described is unsettled; however, it was introduced by Baccelli in 1897, it has been used by several writers; and as such, it has become an identity; and as elsewhere, custom sanctions usage. The conception of angina abdominalis as a clinical identity is by no means universally accepted. MacKenzie very frankly expresses his skepticism about it; however, it is from the same MacKenzie's development of the subject of visceral and referred pain that significant information comes to support it; and one can't help but wonder whether Sir James wasn't a bit hasty in disposing of the subject. Osler regards abdominal angina an extra-pectoral feature of angina pectoris, and Hamburger, in a comparatively recent discussion, states "angina abdominalis is now pretty well recognized."

Angina abdominalis is a symptom complex secondary to cardiovascular disease, occurring usually in persons past forty with arteriosclerosis, characterized by abdominal pain, which tends to be severe, paroxysmal, and recurring; it is associated with general

weakness, loss of weight, and frequently abdominal distention and belching.

The symptom complex is usually encountered in persons over 40 years of age who have evidence of general arterial disease, especially arteriosclerosis. Men are affected more frequently than women. Ortner's description of a patient who had violent attacks of pain around and below the umbilicus, coming on two or three hours after eating; and in whom examination showed the presence of a general arteriosclerosis involving the arterial system and especially the superior and inferior mesenteric arteries and through them the intestine is representative of the pathologic basis of this condition. Not only were the aorta and the mesenteric arteries thickened and calcified, but also the smaller branches of these were stiff, inelastic, and probably contracted. Ortner was of the opinion, that as a result of the narrowing of the arterial supply to the intestines, that the intestines supplied by these vessels did not receive a sufficient quantity of blood; so that the intestinal walls were poorly nourished and were incompetent to do their work; and this manifested itself two or three hours after eating when the intestines take up their phase of the digestive cycle; when under the burden of their strained physiologic function impaired by a poor blood supply, it becomes manifest as visceral pain. In support of this view, Sir James MacKenzie states that "pain is a function peculiar to the cerebro-spinal nervous system as distant from the autonomic . . . nevertheless it is known that pain does arise from the viscera; . . . when pain arises from a viscera, it is produced by the involvement of the sensory nerves of the cerebrospinal system, the pain being referred not to the organs which give rise to the pain, but to the region of distribution of the sensory nerves in the external wall. There is only one demonstrable cause for visceral pain and that is contraction of muscle, especially when the muscle is not supplied with

sufficient blood'' . . . Visceral "pain arises when a muscle is made to contract while the blood supply is deficient."

Abdominal pain is the outstanding symptom. Undoubtedly it begins as an occasional vague distress or discomfort probably coming on several hours after eating, subsiding either spontaneously or responding to dietetic restriction, digestive, or sedative medication. At this stage it does not possess its characteristics which lead to its interpretation and probably passes for the distress of indigestion or constipation or mild cholecystitis. There are probably more instances of this type than the more violent form to be mentioned; however, there is no manner of establishing the diagnosis at this stage. In its more violent form the pain is sudden in appearance, extremely painful and excruciating usually localized around the umbilicus, although it may involve any segment of the abdomen. It is paroxysmal, lasting from a few minutes to a half hour and recurring; later it may become continuous for hours at a time and require the stronger sedatives. In our instance morphine was required on occasions. The pain may be associated with food taking, physical exertion, or emotional excitation, although the attacks may occur during sleep. The pain is usually described by the patient as horribly severe and the dread of further attacks makes life one of continuous apprehension. Weakness is perhaps the second commonest symptom. The patient complains of a general debilitated condition, with loss of strength, loss of energy, impaired appetite, sluggishness of the bowels, an inability to carry on with their usual activities, and an early fatigue resulting from labors that were formerly easily performed. Associated with the loss of strength is the loss of weight. There is usually a constant, slow but progressive weight loss. Our patient stated that he lost twenty-five pounds in eight months. Probably the weight loss results both from the dietetic restrictions, either self-imposed or prescribed, and an impairment of the functions of digestion and assimilation which are quite likely to result with an impoverishment of the blood supply to the intestines. From this severe alteration in the blood sup-

ply to the intestine, abdominal distension, gas distress, and belching are quite likely to result. Elsewhere we have discussed the mechanism of gas distress in the colon stating that one of the common causes of abnormal accumulation of gas within the colon is an impairment of the circulation which retards the rate of removal of absorbable gases from within the gut.

The diagnosis should not be difficult in the frank case of angina abdominalis, although in the early case it is probably quite difficult to establish. The main symptom is the extreme excruciating pain which is of short duration and tends to recur, it is localized around the umbilicus. Other conditions which give pain of similar intensity are biliary colic, renal colic, carcinoma, and lead colic; and a differential diagnosis must be made from these conditions. The other symptoms as loss of weight, loss of strength, gas distress, and functional disorders of digestion are significant. Evidences of generalized arteriosclerosis are helpful in establishing the diagnosis, as an enlarged heart, an accentuated aortic second, a functional aortic murmur, pulsation in the episternal notch, hardened arteries, a high tension pulse tenderness over the abdominal aorta. The electrocardiograph often gives helpful information in establishing the presence of cardiovascular disease, although this important accessory appears to have been neglected. In our patient the electrocardiograph tracing shows definite evidence of a heart block, although the patient's symptoms were entirely localized in the abdomen. A discussion of the detailed differential diagnosis between angina abdominalis and other forms of abdominal pain need not be entered into here since it has been described very well in many writings on abdominal pain. In general, the blood examination shows a mild degree of secondary anemia with an approximately normal leucocyte count, and this rules out most of the inflammatory conditions. Lead colic is easily differentiated by study of the erythrocytes, as well as the history, tabetic crisis is differentiated by the serologic reactions, malignancy is differentiated by the x-ray which shows a gastroin-

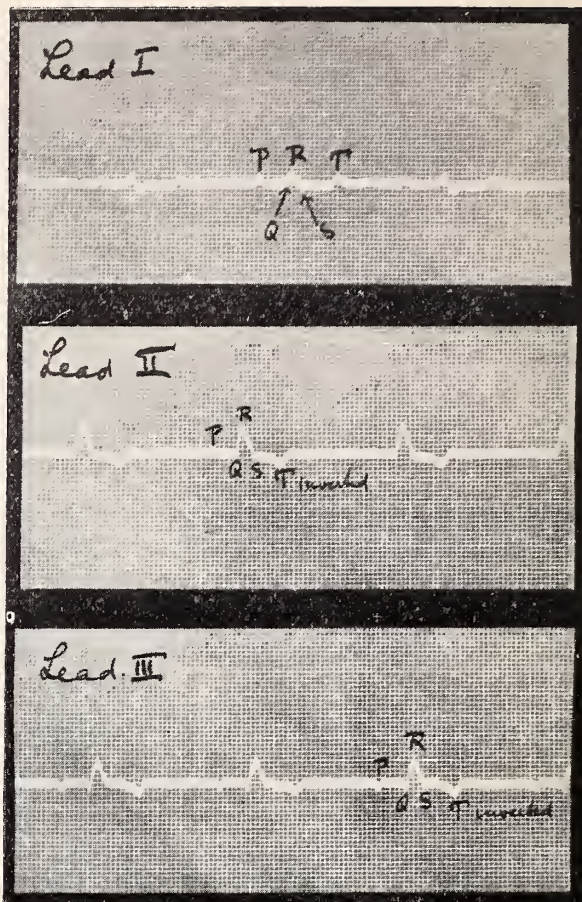
testinal and biliary tract without filling defects, malignancy is further differentiated by the clinical course of angina abdominalis when the patient may have long periods of comparative comfort.

Case Report

"I was a well man until two years ago when my son committed suicide and since then I have been going to pieces," began L. B. M., age 75, when he first came under observation on March 8, 1927. He complained of abdominal distress, constipation, weakness, loss of weight, especially in the past eight months, when he lost twenty-five pounds. The outstanding symptom was the abdominal distress which began as a discomfort about a year previously, usually locating in the umbilical area and radiating down towards the groin, either right or left, more frequently the left. This discomfort appeared two or three hours after eating. He attributed the distress to an indigestion resulting from an intolerance to certain foods, as he began a self-imposed dietetic restriction, eliminating from his diet one article after another. The distress, however, increased in frequency and intensity until it became a colicky cramp; also it increased in frequency, appearing almost every food-taking and its duration was longer. Two months before he came under my observation he had entered a hospital with an admission diagnosis of carcinoma of the pancreas. He left the hospital two weeks later, but slightly improved. After his return to his home the distress kept increasing in severity, frequency, and duration, so that it was almost continuous during the day; his diet consisted largely of bread and milk, and these in sparing amounts; the pain at times had been so severe that both codeine and morphine had been used for relief. The constant dread of the impending pain had made life a burden to him.

Physical examination showed an old man not acutely ill at the time of the examination, but stooped and bent with age; he had the appearance of one who takes the trials of life heavily. He weighed one hundred and eleven pounds, was five feet one inch in height, his temperature was 96, pulse 40, respiration 14, blood pressure systolic 180, diastolic 80. The eyes reacted to light and accommodation, arcus senilis was present. The chest was of the emphysematous type with wide epigastric angle and increased anterior posterior diameter, expansion was poor. Percussion gave hyperresonance and wheezing inspiratory rales were heard. The cardiac area was diminished on percussion due to the overlying emphysematous lung, but on fluoroscopic examination was seen to be enlarged with a left ventricular hypertrophy. The rate was slow, 40 to the minute; the sounds were weak, rather distant and difficult to hear. Due to the overlying lung tissue the sounds were difficult to interpret. The abdomen was flat and somewhat retracted, the adipose tissue was scant in amount, liver and spleen were not palpable. Both recti muscles were somewhat spastic, there was tenderness along the abdominal aorta and descending colon.

X-ray examination showed the stomach to be of the steerhorn type, it filled well, there were no defects. Good peristalsis was noted, also rapid emptying time. The cap filled well. At six hours the meal had left the stomach and was seen in the small bowel and ascending colon. At 24 hours the meal was in the colon. The colon was spastic but otherwise of good configuration; at 48 hours the meal was still in the colon, and at 72 hours it



Electrocardiographic tracing of patient, showing evidences of heart block, but presenting the syndrome of Angina Abdominalis.

had made but little progress. Observation were not made beyond this observation. On barium enema study, the colon filled readily, there were no defects. The spasticity previously noted were apparently overcome by the enema, there were no significant pathologic observations made. Blood examination gave leucocytes 9,000, erythrocytes 4,200,000, hemoglobin 78 per cent, differential, neutrophils 76 per cent, lymphocytes 22 per cent, eosinophiles 2 per cent. The six-hour motor meal of the stomach showed the stomach empty. The Ewald test meal at one hour gave free acid 48, total 58, considerable mucous was present, there was no blood, no pus, no lactic acid, the milk curdling test was complete in 3 minutes with the control also taking 3 minutes, protein digestion was considerable delayed, being incomplete in 24 hours, while the control was complete in 10 minutes. Urine analysis showed acid reaction, specific gravity of 1.010, no sugar, no albumin, a few casts, and a few epithelial cells. The Wassermann was negative, stool examination showed a hard, compact stool, dark brown in color, no blood, pus, or mucous, with the usual debris but no failure of digestion.

An electrocardiographic tracing was kindly made by Dr. Felix Baum, who gives the following report:

The pathology in Mr. L. B. M.'s case is as follows: The T is inverted in lead two and three. This is considered indicative of an unfavorable prognosis by Pardee in one of the recent publications of the Mayo Clinic. The QS distance, which normally should not exceed 2 to 2½ squares = .12", is in this case about 4 squares

long. = .28". The auriculo-ventricular conduction (PQ distance) is prolonged (.28"). The R is notched in all three leads.

The important features in this electrocardiogram are the abnormal width and notching of the QRS group and the downward T waves in lead two and three.

I consider this case a block, which is probably due to a lesion of parts of both branches. The pulse rate is 45. The prognosis, as far as the final result is concerned, seems to be unfavorable. However, there is no auricular fibrillation noticeable in any lead, which is always present in those Adams-Stokes cases where there is an acute danger of death.

While the patient was under observation, he was kept at bed rest, given a diet of easily digested foods and of comparatively low caloric content, approximately 1,800 calories. He had been given codeine and morphine previously and the pain controlled with these. It was from a chance remark of the patient that first suggestion came as to the basic nature of the condition, even before the electrocardiograph tracings was made. "I feel as though I must die during an attack of pain so great is the anguish," and this suggested relationship to angina pectoris, so amyl nitrite was given with considerable relief to the patient for a period of several hours after each inhalation. Atropine had no appreciable effect on the distress. Autocondensation was tried because of its known sedative reaction and because of its tendency to reduce blood pressure even though it might be temporary, 500 milliamperes for 15 minutes were given observing the usual precautions in starting and ending the current through several steps. After the first treatment the patient stated that he felt considerably improved and was free from pain. Thereafter the treatments were repeated once every day and the patient was kept free from pain for a week. The treatments were discontinued and the cramps returned. The treatments were started again; and again the pain was controlled by this means alone. This procedure was again repeated with same result. Both the patient and the writer were convinced that there was a definite and imme-

diate influence of the autocondensation on the cramp-like pain with immediate relief which lasted about 24 hours which was better control of the pain than had heretofore been achieved. These treatments were then continued daily for several months, during which time the patient was comparatively free from pain and no other form of therapy was employed except, rest and light nourishing diet.

At the time of this writing, which is about one year later, the patient is enjoying a fair degree of health, he has not lost any more weight which is considered significant in the differential diagnosis in view of the fact that a malignancy had been suspected over a year and a half previously. However, he has had periods of severe pains which demanded periodic hospitalization. The prognosis, however, is very grave from the heart block.

Regarding the therapeutic action of autocondensation in cardiovascular disease with visceral pain, Grover states that the beneficial action of autocondensation is partly "due to heat, but principally to the action of the current upon the sympathetic nerves controlling secretory and peristaltic function. There is a general soothing effect upon all painful conditions. . . . experience justifies the statement that lost resiliency of arteries may be partially restored by autocondensation After the disease (arteriosclerosis) is well developed and cardiovascular changes have taken place there is no cure, but much may be done to prevent further changes by keeping the blood pressure within the safety zone, this being accomplished by close observation, an occasional treatment of autocondensation and good hygienic measures which common sense will suggest.

Summary

A patient with heart block and arteriosclerosis comes to observation because of severe colicky pains in the abdomen. The pain is intensely severe, and located around the umbilicus. It is associated with loss of weight, weakness, abdominal distention, belching, and loss of appetite.

This syndrome was first called angina ab-

dominalis by Baccelli by which name it is now identified.

The pathologic basis of the pain appears to be an arteriosclerotic narrowing of the arterioles supplying the intestine ((Ortner), which forces the bowel to work under stress, thereby giving rise to visceral pain.

In our patient, considerable relief was obtained by amyl nitrite inhalations, also by employing autocondensation together with the usual management of arteriosclerosis.

The prognosis of the patient is grave.

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THE PRACTICAL APPLICATION OF ENDOCRINES IN MEDICINE*

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Almost every study of endocrines in the past has been a record and illustration of freaks. My paper is much the same. In other words, endocrine pathology, as it is generally understood, is a record of freaks. These freaks may be termed exaggerations of the normal. However, it is necessary in order most vividly and impressively to grasp this study, first to see the worst cases.

Whoever departs in a striking way from the normal human being, whether it be in respect to stature, color, gait or disproportion between limbs and trunk, or whoever exhibits a facial oddity, as bulging eyeballs or massive lower jaw, at once arrests the attention.

Now the practical application of endocrines in medicine consists of treating these freaks, of course. But after all, these marked pathological cases which I will show in the lantern slides are only rarely found. For instance, in Denver I have found only one case of pituitary tumor with autopsy findings. This was diagnosed antemortum and then operated by the brilliant Harvey Cushing. In other words, I have only one case where I have the whole pituitary story.

These exaggerations of endocrine pathology which I shall show are interesting, but endocrinology is making such rapid strides that we must now find and diagnose our cases from much more obscure symptoms.

This is the practical and difficult study which the future of medicine will present to us. You will remember the old Quaker who said, "Everybody's crazy but thee and me, and I sometimes think even thee's a bit queer." We might paraphrase this and make it read, "Everybody is more or less of a freak, even thee and me." So that we are all slaves of our endocrines. The trick of the master is to detect, not the evident symptoms which are so marked that any layman can diagnose them, but to discover the finer departures from the normal. Practically we have learned as in other fields of medicine that the younger the patient, the better the outlook.

So the secret of endocrine therapeutics is to get patients when they are young or to make a diagnosis such as Basedow's early. Endocrine therapy never cured acromegaly, or Addison's disease and never will. In other words, endocrinology will win its battles on the field of prophylaxis.

Every study of the endocrine glands should be introduced by an estimation of the basal metabolism. This seems a sine qua non before we can start any study of this kind.

Included in this same examination we must have a complete life history and physical examination of the patient. In an attempt to grasp the endocrine picture this life history has a much more important bearing than in the usual physical examination of the ordinary patient. Not only the his-

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tory of the parents must be investigated, but also the grandparents on both sides, then the status of the brothers and sisters, and then the patient's history. We are interested all along the line in the history of the patient, as well as that of his relatives, as to the general appearance, the skin and appendages, the hair, the nails, and the teeth. Then the body fat is considered, and its distribution. Any abnormality in the bony growth must be carefully noted. The facial characteristics must be studied. The mentality also is different in every type of endocrine disturbance.

The Thymus Gland

It is beyond the province of this paper to treat the thymus or any of the glands with the thoroughness with which they should be treated. I can mention only a few outstanding characteristics. All the functions of the thymus gland are not yet clear, but it probably has a direct relation to body growth, and inhibits sex differentiation.

Where there is a thymic subinvolution we expect that beautiful baby-like skin, smooth and velvety. If the thymic action persists in the male there is no mustache or beard or he must shave only occasionally, the pubic hair is sparse, the teeth are bluish white and not uniform, or they are undeveloped, the canines have a cutting edge like the incisors, the joints are loose, and the extremities are flail like. There is a low blood pressure, slow pulse, hyperacidity, fatigability, subnormal temperature. The genital apparatus is small and shows lack of differentiation. The supra-renals are small and inefficient. As a result patients are very susceptible to any intercurrent disease. Any violent shock may be fatal in this status lymphaticus. However, the adrenals, pituitary, and thyroid may come to the rescue and all the symptoms clear.

In contradistinction to these hyper-thymic individuals we have a precocious involution of the thymus. The individuals of this group are short in stature and adult characteristics appear early, as for instance, the permanent teeth. Frequently all the teeth are out of alignment, the secondary hair is early in appearance, there is early develop-

ment of the breasts, there is precocious menstruation, the blood pressure is high, the mentality is precocious. They have cruel instincts. Although they seem far advanced for their years while still young, they never seem to mature fully. They are easily aroused to anger, are impulsive, and form a large percent of our criminal class.

Pineal Gland

In childhood and adolescence the secretions of the pineal are most active. Here, as is the case with other glands, we have the underacting gland and the overacting gland. When we find a case which presents retarded sexual development, and if such a patient shows undue muscular development and his mental reactions are childish, we have an example of pineal subinvolution. On the other hand, if we have a precocious pineal gland we have enlarged genitals, and the muscles show a progressive muscular dystrophy.

The Gonads

Among the individuals whose personality is dominated by their sex glands the physiognomy, physique, and life reactions are so distinctive that no better examples exist of our main thesis: that the whole life of man is controlled primarily by his internal secretions.

About the face of the eunuchoid the striking feature is the incomplete, irregular, or absent hair development. Below thirty the face is fat with puffy eyelids and the skin is rather childish in its texture. After thirty, there is an effect of premature senility; the skin is yellowish, leathery, and wrinkled as the faces of old women are wrinkled; the upper lip is traversed by vertical wrinkles, and wrinkles come around the corners of the mouth. Invariably the voice is higher pitched than the usual masculine tones. The reproductive organs are those of a little boy. There is an infantile mental state; light-heartedness, naivete, timidity, easily evoked tears and laughter, promptly aroused but fugitive wrath; excessive tenderness, but unreasonable dislikes.

On the other hand we have the excessively sexual male and female. You all know

them. They may best be described by the expression, "They look it."

The Ovaries

The effect of deficiency of ovarian hormone is so well known through operations and the menopause that it is scarcely worth mentioning. I do want to call your attention to the fact that these flushings and sweatings, the nervousness and irritability of the menopause, represent one of the most vivid examples of endocrine disturbance we have. At this period in life there is a cessation of activity of the corpus luteum, and over activity of the thyroid. The increase in blood pressure is caused by adrenalin. If this is deficient we get asthenia. Administration of luteum may offset this and brilliant results follow. Relief of these symptoms by heliotherapy, hot air, diathermy, and the hot water bag are all imitations of nature trying to supply endoerines.

The Adrenals

The adrenals are divided into two distinct parts, the cortex and the medulla. The secretion of the cortex has not been isolated, but the medullary secretion is the well known adrenalin.

The adrenal cortex arises from the same source embryologically as the gonads. This relation extends along with the development of the gland so that we find the cortex closely connected in the sexual development. It also has to do with deposition of pigment, the growth of hair, and the general muscular development and vigor of the individual.

The action of adrenalin, the product of the suprarenal medulla, is well known. It causes a temporary rise in the blood pressure. It is a factor in the maintenance of muscle tone. On the other hand it has a depressive effect on the vagus system. The erection of the cat's hair when it sees the hostile dog is caused by adrenalin.

Addison's disease is a disease of the whole gland. It is characterized by low blood pressure, pigmentation of the skin, irritability of the stomach, feeble heart action and marked asthenia. The prognosis is uniformly fatal.

The Pituitary Gland

The pituitary gland is divided into two

lobes, the anterior and posterior. The anterior lobe promotes skeletal growth and stimulates sexual development, especially in the male. The posterior lobe is credited with properties of stimulating metabolism—and to assist in sexual development, especially in the female.

When there is an increased secretion of the anterior lobe acromegaly results. There is an increased thickening of the bones and thickening of the soft tissues. There is a characteristic enlargement of the lower jaw; the finger domes and toe nails are very much broadened. Sometimes the ears grow to an immense size. The voice becomes deep toned and harsh. These physical giants are apt to be mentally deficient. Francis Bacon says, "A very tall man is apt to be like a dwelling house—the attic lacks furniture." Treatment is of no avail.

It is from the posterior lobe that pituitrin is derived. It stimulates uterine contractions, increases urinary excretions, increases peristalsis (and it is for this reason such a wonderful therapeutic agent in postoperative tympanites). On account of its great sympathetic stimulative properties, it has become the remedy par excellence in surgical shock, being far more efficacious in this regard than adrenalin. From this short synopsis of the characteristic activities of the hypophysis we can readily see how a disturbed pituitary gland may cause the most marked general disturbance of bodily functions.

One of the results of hypopituitary secretion is Froehlich's disease, characterized chiefly by fat dystrophy and genital hypoplasia. The fat distribution is characteristic, being deposited in the thighs, hips, and lower abdomen. The face is small, sexual libido disappears, in the female the menses become irregular and ultimately disappear. There is usually a progressive increase in tolerance for carbohydrates.

The Thyroid Gland

In the past few years Kendall of the Mayo Foundation has succeeded in isolating what seems to be the active principle of the thyroid gland, thyroxin. It causes a rise in basal metabolism, it is a catalyzer. The thyroid-parathyroid apparatus has for its

function the preparation of the results of body oxidation into compounds which can be readily eliminated from the body.

The thyroid gives to the skin its hairiness, moisture, contributes to the growth and size of the bones; has an important bearing upon the whiteness of the teeth, distribution of the fat, development of the genital functions, the stability of the mind, speed and efficiency, proteid metabolism. The thyroid is the greatest immunizer we have in the body against bacterial infection.

Under-secretion of the thyroid results in cretinism and myxedema with which you are all familiar. These patients are dull, the lips and tongue are thick, the malar bones are prominent, the stature is dwarfed depending upon the period when the disease develops. The mental condition of the cretin is one of complete idiocy. The teeth are slow in eruption, atypical in location, badly shaped and easily decay. The skin is rough and dry. The temperature is subnormal. There is a lowering of the metabolic rate. One of the characteristic symptoms is constipation, and it is quite remarkable how thyroid extract in myxedema will relieve a constipation of many years' duration.

Basedow's disease is another disease with which you are so familiar that I will not go into the symptoms except to remind you of the characteristic, anxious facial expression, the exophthalmos, tachycardia and high basal metabolic rate. I also want to call your attention to the fact that while surgery seems the treatment of choice in hyperthyroidism, the medical treatment promises much. We know that most causes of hyperthyroidism are psychic traumas. These must be recognized and treated early. Rest, physical and mental, especially out of doors, hydrotherapy and diet will cure all except the most malignant types of this disease—if you will give the patient time. In other words, it is a self-limited disease.

The Parathyroids

The parathyroids increase the calcium content of the blood. Insufficiency of the parathyroid secretion results in muscular spasms and tremors. The patient develops a delicate skin, has an anxious and alert expression,

bright eye and twitching muscle, the symptom complex of tetany. Paralysis agitans is alleged to be a disease which is deficient in parathyroid. Certain forms of epilepsy also have this reputation. Remember in the accidental removal of the parathyroid by operation that the tetany resulting is helped by parathyroids and calcium or milk. The calcium content of fresh, sweet milk is equivalent to a 1 per cent solution of calcium lactate.

The Interrelation of the Endocrines

One of the most fundamental phases of our subject is the physiological and structural interrelationships of the endocrine organs. Recently we are getting new proofs of this based on anatomical experiments. In fact, it is here where the advances in our knowledge of the ductless glands have been most striking. It is more especially when removal of one of the endocrine organs takes place in the prepuberty stage that marked alterations occur in one or more of the remaining glands. Among the remote consequences may be marked changes in body conformation.

The thyroid, the pituitary and the suprarenal have become indispensable stimulants to the primary sex function. As a consequence there had to be others restraining them and so prevent sex precocity. These are the thymus and pineal. So closely are they all related that insufficient action of the thyroid, pituitary or adrenals may cause atrophy of the genitals with abolition of function.

So we can see the complications and possibilities of the interrelation of the endocrines are simply beyond comprehension, yet their appreciation even in a small degree is of greatest possible therapeutic application.

Practical Application of Endocrines

underaction or overaction of the endocrine

The recognition of the symptoms of the glands, and combination of glands is becoming clearer. Hence at the rate we are learning the very near future will require every physician to practice much more organo-therapeutics. It is impossible in the time allotted to go into the application of endocrine therapy in all diseases, but the

field seems to be growing wider almost weekly. For instance, in tuberculosis the blood pressure and asthenia may be a combination of adrenal and anterior pituitary and thyroid insufficiency. It seems more than likely that this is the case, hence it may be that the future treatment of tuberculosis is an endocrinological one.

Endocrines and Personality

The importance which the internal secretions have toward medicine can be understood when we realize that the hormones are concerned in every function of the body, circulation, breathing, digestion, excretion, growth, metabolism, musculature, bony frame work, skin. In fact, it is even concerned in the immunity against infection. Character and personality are affected. It is the internal secretions which effect depressions and optimism. One who has a knowledge of internal secretions knows what kind of reaction will take place in a given case. So the further extension of the application of the endocrines can go outside of the domains of medicine. It determines the character, the personality. Criminals are almost all of them thymo-centric.

The hyperthyroid type is alert and mentally active. He is the pushing, strenuous, tense, high blood pressure business man and woman. The thyroid is the great controller of the speed of living. When the secretion is in excess the individual senses, feels, thinks, and acts more quickly.

When there is an increase in secretion of the anterior lobe of the pituitary we have the large masculine type of man. His appearance would indicate self-mastery and domination. His voice is deep and low pitched.

The hypo-pituitary personality represents more especially the feminine type. The voice is high pitched. Here we have the doll face. The skin is moist and hairless. If there is instability of this gland, we have the restless, cold blooded, vampire type.

I predict that the pituitary in the progress of time will be the greatest of all the endocrines in the regulating of personality. Wouldn't it be great if we could just take a few post pituitary tablets and be a cold

blooded vampire on occasion, or take a few anterior pituitary pills and be the master mind in finance?

In the hyperadrenal type there is a striking vigor, energy, and persistence. He develops into a winning pugnacious fighter. The buffalo has the widest adrenal cortex. The hyper-adrenal woman is masculine. She is dark and has hair on her chin. She is striving forward. She commands responsible executive positions and high salaries.

The combination of hyper-adrenal, hyper-pituitary, hyper-thyroid should produce the superlative man.

DISCUSSION

F. R. King, Green River, Utah: I do not like to lead the discussion on such a paper, especially on a subject I know so little about; but it so happened that I had a case come to me about two weeks and a half ago that caused me to do a little thinking, and I was wishing that I might have had a little help at that time, and I would like to have it now. This is a boy about twelve years old, I should judge, whom I have seen running around my village for quite a long time. He came to me with a green stick fracture of the ulna, and it was such a peculiar thing—perhaps other men have seen it. The radius was curved; that was the left arm. The right arm, the ulna and radius, are about normal. I was wondering whether this curved radius was present before his accident, or after. Now, I will draw here a radius as near as I can, something like this. That (indicating) may be just a little bit over-drawn—I am not an artist, as you see—it is just a little bit over-drawn for the purpose; and the fracture, like this (indicating). After two weeks and a half I examined him, and found a nice little callous right in here (indicating). Now, you see the position I have drawn these two bones. It is just in the shape you would put the arm for an ordinary fracture, but it is down this way. How could that ever happen? How the force could have broken that bone, I don't know. It was not explained to me. It occurred while he was playing around the house, and he broke his arm, that is all. This boy, I should judge, as I say, was about eleven years old. He has a posterior curvature of the spine, quite pronounced, with the anterior protrusion of the sternum, which you always find in these hunch-backs. One leg is a little shorter than the other. He is acute mentally; he is never sick. The only other time I ever saw him was when he had measles, and he recovered quickly; but I mean ordinarily he is well, active and running around. He does good work in school. The brief history I have of the case is something like this: He was a normal child at birth; his mother did not notice anything wrong with him until he was old enough to walk. From perhaps when he was about two years old—at that time, she tells me briefly—and the case came to me so recently and I have been so busy that I have not gotten the history very carefully—but at that time she says he developed a hunch in the middle of his back. Now, that is rather indefinite, but we would assume that it would be along the sixth, seventh and eighth dorsal, per-

haps, and without any particular suffering or inconvenience he kept going around that way; and the condition became gradually worse, and she tells me that in the last year she has noticed wonderful progress in the advancement of his deformity, so I do not believe I have overdrawn this much—you may say this is his head (indicating), and here is kind of a short neck, and here is his spine and here is his sternum (indicating). Now, the question came up in my mind, why would that boy easily suffer a greenstick fracture? Why would the radius show a curvature to correspond with the curvature of the ulna, and yet by manipulation the best I could I could not make out any trouble with the radius? The next we say, is this a case of what you would call demineralization, lack of calcium? I don't know. That is what I want to have help on. I tell you what I did, however; I gave 100 tablets of calcium lactate, one three times a day, and I told him I would send for something to stimulate the activity of the parathyroid gland. If I am stumbling on the right thing, I would like to know it, and if not I would like to know it. I appreciate the paper very much, and it seems to me that occasionally every one of you will run across a thing like this and will need help. It is my first case of the kind, and it is sure mysterious to me.

W. B. Yegge, Denver: I think Dr. Minnig should be congratulated on his most excellent paper. I am sorry he did not have time to go into detail on the subject of endocrinology.

In the next few years, I believe the practice of medicine will be revolutionized by the new advancements in this field.

One question I want to ask, though, he spoke of the over activity of the thyroid gland, I believe, following the cessation of menstruation. I do not know whether that is his observation, but with a good many of these people at the cessation of menstruation they sometimes have hypothyroidism, and I would like to have him tell something about that.

The application of endocrinology to practical medicine is being brought up every day, and I think the time will come when we will see much more of it. In obese persons we often find symptoms of gall bladder disease, and after administration of thyroid we find the symptoms have all disappeared.

Another thing is the administration of fresh glands in these cases. The doctor did not have time to go into the treatment, but I have found a great variation in the freshness of the glands as usually handled by a good many druggists. We find when you administer certain glands you had better stick to one make and be sure it is fresh.

In the past few months I have had several patients who had been on thyroid medication for some time and suddenly began to have no benefit from the treatment and some showed severe reaction. Investigation revealed that the trouble started from the time of the last refilling of their prescriptions. The prescriptions were then filled by a competent druggist who always carries a fresh stock and immediately good results were obtained by keeping on the original dosage, and no reactions were noted.

I think that is one thing you have to watch carefully, the freshness of the glands.

Arnold Jackson, Madison, Wis.: This is such a fascinating subject that I cannot help but take a couple of more minutes of your time. I want to congratulate Dr. Minnig on the range of his paper. It was very interesting to me. This subject is like a game of checkers. You have all the men

before you, and all you have to do is move them around. It has been my hobby. We are just beginning to learn something of the parathyroid gland. For a while it gave great promise. However, parathormone is in line with insulin, in that it is effective as long as it is used, but it must be used continuously. To me it is a puzzle why some cases develop tetany after operation. If we use the same technique, why should we have one result with one case and a different result with others? I became interested in the study of blood calcium, and I have found a point that may be of interest to those studying this subject. We know that ultraviolet light mobilizes the calcium in the body. I had one case of tetany who was being controlled by taking 600 grains of calcium a day. It seems like a large dose, but that is the amount that was required. Two or three times she came back after having had convulsions, since she had decreased the dosage. We put this patient under the ultraviolet light. Her blood calcium was normal. We cut the dosage in two, 300 grains daily, and in three days' time her symptoms of tetany began to reappear and her blood calcium dropped to 7.8. We increased the ultraviolet, and after three days she began to improve, and her blood calcium again gradually came up to normal, so that at the end of three weeks she felt very well on 300 grains. This has gradually been reduced until at the present time she is taking only 35 grains a day. Over a year has elapsed, and during this time she has been given only two series of ultraviolet light treatments over a period of three weeks. Marine has spent the last six years in the study of the supra-renal gland, seeking to find the cause of exophthalmic goiter. The effect of injecting thyroxin into a patient with myxedema has always seemed miraculous to me. Within forty-eight hours definite changes begin. The patient can hear better. The voice gradually returns to normal. The hair begins to grow, and the mentality to return to normal.

E. A. Mead, Greeley: We do not see many of these cases, so it seems to me that every case which furnishes us symptomatology should be reported. For that reason I wish to tell you of a school teacher who entered the State Teachers College in Greeley for the summer course.

She was a girl twenty years of age and when she entered the office I was impressed with the peculiar look of the girl and something impressed me at once to let her tell her own story. Her chief complaint was headache and weakness.

She told her story which might have been memorized from a text book. It was so impressive that I asked her if she would wait till 5:00 o'clock and then tell her history to some of the other doctors whom I called in. She did so and we could not but be impressed by her powers of observation.

She said she had been teaching about two miles from where she lived, but she was so weak in her legs that she had to go horseback and had to have some one help her on and off the horse. She had to pull herself up the stairs or out of a chair with her arms. She could not remember her daily routine and had to write it down. Every night she wrote down what she was to do the next day. Her vision failed her. She could not see her hands in her lap or anything to the side or above—only just straight ahead. I had an eye specialist examine her eyes and she showed typical cylindrical vision.

She said, "I have had to get two sizes larger shoes and two sizes larger gloves," though she had not to change the size of her clothes. My lower jaw comes out beyond my upper teeth and

it used to be inside. My tongue is getting so big I can't hardly keep it in my mouth."

Because of her headache she thought her trouble was largely eye strain, but she had been to an eye specialist in the southern part of the state and he had told her her eyes were all right and he could do nothing. She suffered constantly with the headache.

She had put on weight in spite of her increasing weakness and there were many other significant symptoms—amenorrhoea for one and mental confusion.

It was quite evident that she had a form of acromegaly, so I gave her small doses of pituitary extract. The fact that she had gained so much weight and lost so much strength and had amenorrhoea made me feel there must be a lack of thyroid also, so I gave her small doses of thyroid. She gave up her school work on account of the headache and weakness.

She continued with the glandular treatment until she had lost thirty pounds in weight. Her headaches improved and she was much clearer in her mind. She also gained in strength. We stopped the thyroid, but she continued with the Pituitary extract for at least six months. She finally wrote me after she left town and said, "My personality seems to be changing," so we discontinued the treatment. We had a very good x-ray picture of the sella turcica but it did not show any erosion.

J. M. Lamme, Walsenburg: I had the pleasure of seeing this case first, and from the eye symptoms, should have been able to detect and diagnose with the endocrine glands.

After she had been under the care and received treatment from the doctor she returned to my office. As I went through the reception room she said, "How do you do, doctor," but on account of her being so changed, I did not recognize her. When I discovered who she was, it immediately dawned on me that this was a case of endocrine disturbance.

I have had, in the meantime, a similar case to this with very favorable results.

Surely these things are interesting to one doing work a little remote—they can not be entirely remote—from our own particular specialty.

I have enjoyed your paper, Dr. Minnig. I did not intend to discuss it at all, but since the doctor brought up this particular case, I had to confess my error in diagnosis.

I am sure that some of our errors, if so stated, may be picked up later by another person, probably more alert.

C. W. Workman, Denver: A woman of about forty came to me about three years ago, having had periodic convulsions. The case had been diagnosed as epilepsy. I treated her for probably six months on the supposition that that diagnosis was correct. Later, I found that her blood pressure was rapidly dropping, and her decrease of weight was rapid. I found that she had a persistent low specific gravity of the urine. The blood pressure gradually increased by giving her a combination of mixed gland extract. She now has a blood pressure of about 105, and it was as low as 85. This was a very interesting case to me.

Dr. King's case is very interesting. I am wondering whether that case had a lot of milk. There is 1 per cent of calcium lactate in milk.

Dr. King: That case is the oldest in a family of five children, and I was impressed with the appearance of the other four. They are as perfect specimens of childhood as you would care to see anywhere. The children have all been fed and

cared for in the same way. They keep a cow, and I guess have always kept a cow.

Dr. Minnig: Does this child drink milk?

Dr. King: Yes, the same as the rest of them. I can send the case to you for personal study and observation, and if you care to, I will be glad to do it.

Dr. Minnig: Why don't you try him on the parathyroid gland?

Dr. King: I have ordered the parathyroid.

Dr. Minnig: I think you will get results there.

Dr. Minnig (Closing): In Dr. Yegge's case, we have an over-active thyroid of the menopause. The flushings we have at the menopause are characteristic of hyperthyroidism, and you have, of course, a decrease in the secretion of corpus luteum, but there is an over-action of the thyroid. Probably what happens, is that you do not have any action of the corpus luteum, but the thyroid has an unobstructed path, as well as the other glands. There is some secretion of the adrenal and thyroid. That is my explanation. About organo-therapy and glandular organo-therapy: this is a big field. I just want to say one word about that, and that is, there is a difference in the preparations of these glands, furthermore, you may have to use much larger doses than has been your custom. For instance, we use as much as seventy-five to one hundred grains corpus luteum a day. This is generally accepted now by people doing this sort of work. It costs these patients quite a lot of money to be sick. Dr. Jackson's observations were very interesting. He is impressed, evidently, in the same way that I am, in that this is a fascinating study, and the more you go into it, the more you learn. With the ultra-violet treatment he suggested, you have, as I said in my paper, a reproduction, or attempt at reproduction of what the endocrine glands are really doing. For instance, thyroid may be the solution there. Dr. Mead's case is surely a most interesting one. I should say there was an insufficiency of several glands.

PREVALENCE OF POLIOMYELITIS IN THE UNITED STATES

Reports from the health officers of forty-three states for the four weeks ended December 24, 1927, as shown in a January issue of Public Health Reports, show decreases in the number of cases of poliomyelitis as follows:

	Cases
Week ended December 3, 1927.....	195
Week ended December 10, 1927.....	163
Week ended December 17, 1927.....	118
Week ended December 24, 1927.....	85

Twenty-four of the cases reported for the week ended December 24 were in the Pacific coast states. Massachusetts reported 11 cases for that week, Michigan and New York each reported 5 cases, Texas reported 6 and Pennsylvania, 4 cases. No other state reported more than 3 cases of poliomyelitis for the week.

A comparison of the reports for the week ended December 24, 1927, with those for the corresponding weeks of the years 1925 and 1926, shows that poliomyelitis was more prevalent than it usually is in December. The following table is based on reports from forty-two states:

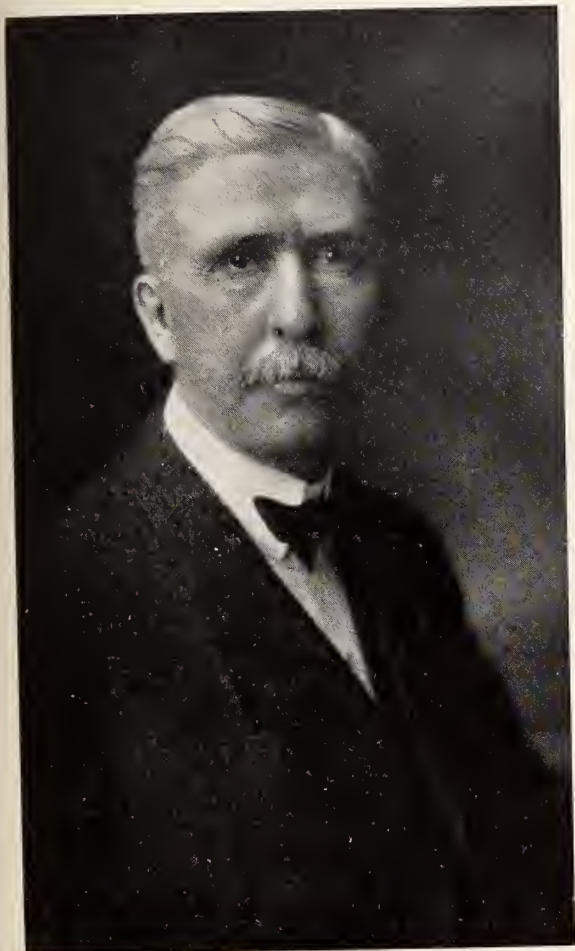
	Cases
Week ended December 26, 1925.....	12
Week ended December 25, 1926.....	12
Week ended December 24, 1927.....	85

—International Medical Digest.

In Memoriam

GEORGE B. PACKARD

Dr. George B. Packard, born in Jericho, Vermont, May 9, 1852, son of Cyrus and Melissa (Mead) Packard, died at his Denver home, 1344 Franklin street, February 23, 1928. He received his preparatory education at Underhill Academy, Vermont, and his degree of M.D. from the University of Vermont in 1874; later he engaged in post-graduate work in the medical college of the University of New York. On June 6, 1883, he married Carrie Sanborn of Springfield, New York.



Dr. Packard engaged in the practice of his profession in Hartford, Conn., from 1880 to 1889, when he moved to Denver, where he resided to the time of his death. He was professor of orthopedic surgery of the School of Medicine of the University of Colorado from 1895 to 1915, since which time he has been emeritus professor. Dr. Packard was a member of the American Medical Association, the Orthopedic Association, of which he was president during the year of 1914-1915; the Colorado State Medical Society, of which he was president during the year of 1914-1915, and the Medical Society of the City and County of Denver. He was the first president of the Children's Hospital of Denver.

Dr. Packard was one of the most eminent and beloved surgeons in the history of Denver, where he has long been associated with the staffs of

the leading hospitals. He is survived by his widow, a daughter, Miss Ruth Packard of the Denver schools, and two sons, Dr. Robert G. Packard and Dr. George B. Packard, Jr., and a sister, Mrs. E. Colburn, all of Denver.

RESOLUTIONS ON THE DEATH OF DOCTOR GEORGE B. PACKARD

Whereas, Death has once more invaded our ranks, taking away one of our most honored and dearly beloved members in the personage of Doctor George B. Packard, a man pre-eminent in his profession, internationally renowned in orthopedic surgery, a man, whom but to know, was to love, admire and respect; a man firm and unchangeable in what he thought was right, considerate of the opinion of those who differed with him, but possessed of that rare trait of character to give offense to no one;

His unselfish and untiring efforts were responsible for the creation, development and success of the Children's Hospital. He rose to the top of his profession through persistent study and labor, meeting and overcoming obstacles that would have meant failure to those not possessing his rare and noble traits of character. He was a Christian gentleman, a man among men. His life, character, manner and lovable disposition were exceptional, and stand out as an incomparable example to emulate; therefore, be it

Resolved, That the Medical Society of the City and County of Denver expresses its sorrow in this great loss to the Society, to the medical profession, to the state and to the family; also be it further

Resolved, That a copy of these resolutions, expressing our profound sympathy, be sent to the family.

S. D. VAN METER,
Chairman.
F. H. McNAUGHT,
C. B. VAN ZANT,
S. FOSDICK JONES,
Committee.

ALFRED A. BLACKMAN

Dr. Alfred A. Blackman died at his home on Feb. 26, 1928. Dr. Blackman was born in Montreal, Canada, April 21, 1860. He came to Colorado in 1897 and took his M.D. degree from the University of Denver. He interned in the Massachusetts General Hospital and then began the practice of medicine in Colorado Springs in 1902. He specialized in psychotherapy and did much post-graduate work in that field. Death came suddenly as a result of cerebral hemorrhage.

WARD T. BURDICK

Just as this number of the Journal goes to press the sad news of the sudden and untimely death of Dr. Ward T. Burdick of Denver has been announced to the profession. Dr. Burdick was so well and favorably known this news will come as a great shock to his many friends not only in Denver but throughout the state.

NEWS NOTES

The American College of Physicians elected the following men from Colorado as fellows of that body: Drs. I. D. Bronfin, C. F. Kemper, J. G. Ryan, Saling Simon, A. S. Taussig, J. J. Waring, G. B. Webb, W. B. Yegge. The following men were present to receive their degrees and diplomas: Drs. Ryan, Waring, Webb and Yegge.

The sixth annual Kansas City fall clinical conference will be held in the new Shrine Temple, Oct. 9, 10 and 11, 1928. This meeting is planned to be of particular interest to the general practitioner.

The Radiological Society of North America will hold its fourteenth annual convention in Chicago, Dec. 3 to 7, 1928. The headquarters of the convention will be the Hotel Drake. A program of unusual interest is being planned and great effort is being made to secure as large an attendance as possible.

Plans are already being laid for a large attendance to the annual meeting of the American Medical Association to be held in Minneapolis, June 11 to 15. The Burlington railroad will sell one-way tickets from June 6 to 12 to Minneapolis for \$32.04 by way of Omaha over the Great Western or Northwestern. Certificates will be issued with each ticket making the round trip railway fare from Denver to Minneapolis \$48.06.

UNIVERSITY CLINICS

The third annual clinic of the University of Colorado School of Medicine and Hospital was held on March 21, 22, 23 and 24. As in the past, this clinic was conducted to further the cause of medical practice and education at no cost to those in attendance.

The registration this year was gratifying, for a total of 250 physicians were enrolled, exclusive of staff members. Approximately 60 per cent were from outside of Denver, and all parts of the state were represented. Wyoming, Texas, California and Louisiana were represented by one or more physicians.

The clinic aimed to give something in all the major subdivisions and specialties of medicine and surgery, and particular stress was placed on the commonplace conditions met by the general practitioner. Comments from those in attendance were very favorable, and wishes were expressed that these clinics might continue in the coming years.

CORRECTION REGARDING GOITER CONFERENCE

The American Association for the Study of Goiter will meet in Denver, June 18th, 19th and 20th and not as previously announced in an editorial of Colorado Medicine. It has been definitely learned that Professor B. Breitner of the Von Eiselsberg Clinic of Vienna will be present and read a paper on his animal experiments relating to goiter and iodine medication. Dr. Henry S. Plummer of the Mayo Clinic will conduct forenoon diagnostic clinics at the Denver General Hospital and Dr. H. B. Haggart, former president of the American Medical Association, will be in charge of the morning clinics at the Colorado General Hospital. The afternoons will be given over to scientific papers at which time the conference will meet in the assembly hall of the

Denver County Medical Society in the Metropolitan Building.

It is imperative that the physicians of Denver and Colorado make themselves responsible in directing interesting clinical goiter material to these diagnostic clinics. Any typical or atypical diseases of the thyroid gland should be thought of as possible clinical material.

MEDICAL SOCIETIES

DENVER COUNTY

Dr. H. W. Orr of Lincoln was the guest and speaker of the Denver County Medical Society, March 6, 1928. In his interesting address he went first into the history of the various methods of treating osteomyelitis, comparing especially Lister's procedures with more recent ones, and later took up the modern methods which really do not differ very radically from those of Lister. Dr. Orr then launched into the most interesting phase of his address—his own ideas of the treatment of osteomyelitis complicating compound fractures, non-union and sequestra. He stated that he had arrived at these conclusions because of the varying results in the World War, with the several variations of antiseptic treatments, all of which included daily dressings and irrigations, with more or less manipulation. He hit upon the solution of the high percentage of failures which he believed wholly or largely due to the manipulation and the inefficiency of the various types of splints to obtain full and complete immobility. In order to solve this difficulty, he hit upon the following plan, which he believes is the best known today:

In a simple enclosed osteomyelitis he

1. Operates to remove diseased bone or bone sequestra and to drain pus.
2. He packs the wound fully with vaselized gauze, using no stitches.
3. Puts on a cast to immobilize the limb (or part), leaving no window for frequent discharges. This cast is left on without changing the dressing, for an indefinite time, even a few months.
4. Then a window in the cast is made, or the cast is removed and the wound cleaned, repacked, dressed, and the cast probably replaced and again left on for some weeks. Any mechanical appliances for approximating the fractured surfaces used at operation he may incorporate into the cast, using them in maintaining extension, if need be. His treatment in fractures is the same.

Dr. Orr showed numerous slides of very complicated fractures, which demonstrated his results, and we can say that these results were very complimentary to his ideas, and to Dr. Orr personally, in his patience and intelligent persistence in caring for these extremely difficult cases. Dr. Orr is certainly to be congratulated upon this address, which was given extemporaneously from card index notes. His talk was well-connected without repetition, and best of all, it was a story of the man's experience in his method of subserving every detail to the one idea of immobilization after full removal of sequestra or foreign bodies, with the establishment of continuous adequate drainage.

Numerous opinions expressed was that this was one of the very best addresses we have had in years.

ARKANSAS VALLEY MEDICAL ASSOCIATION

The Arkansas Valley Medical Association met at the Congress Hotel, Pueblo, Colo., Friday, Feb. 9, 1928. The following program was rendered to the pleasure and benefit of those members and guests fortunate enough to be present:

PROGRAM

Bone Lesions, Tuberculous and Non-tuberculous, with X-ray Demonstration Dr. F. A. Forney
Medical Staff, Modern Woodmen Sanatorium
Discussion opened by Dr. Jones, Fort Lyon;
Dr. Downing, Woodmen; Dr. Steindler, Iowa City
Barometric Pressure and Its Influence on Tuberculosis..... Dr. R. M. Fulwilder
Veteran's Bureau Hospital, Fort Lyon
Discussion opened by Dr. A. M. Forster, Colorado Springs; Dr. Campbell, Fort Lyon

12 NOON

Lunch, Congress Hotel

Tuberculosis of the Spine.....Dr. Arthur Steindler
Prof. Orthopaedic Surgery,
University of Iowa, Medical College
Discussion opened by Dr. Atha Thomas, Pueblo, and Dr. S. B. Childs, Denver
Case Report of Generalized
Bone Disease.....Dr. C. R. Fuller, Salida
Discussion opened by Dr. S. B. Childs, Dr. Steindler

DELTA COUNTY

The Delta County Medical Society held its regular monthly meeting in Delta Friday evening, Feb. 24, 1928. Following a 6:30 dinner at the Delta House, the scientific meeting was held at the Delta Clinic. Members present were Drs. C. H. Burgin, Bolton, Cleland, Day, Erich, L. A. Hick, L. L. Hick, McClanahan, Myers and Smith.

A clinical demonstration of a certain operative procedure and results in frontal sinus infection was given by Dr. H. A. Smith. Dr. L. C. Bolton presented a paper on "Growth and Senescence," and Dr. L. A. Hick read a timely paper on "The Prevention and Treatment of Scarlet Fever." General discussion.

The next meeting is to be held in Delta with papers by Drs. C. H. Burgin and Day.

LAWRENCE L. HICK, M.D., Secy.

EL PASO COUNTY

The February meeting of the El Paso County Medical Society was held Wednesday evening, Feb. 8, 1928. The members of the Society were the guests of the board of directors of the Union Printers' Home at a dinner preceding the meeting. Dr. Arthur Steiner, professor of orthopedic surgery at the University of Iowa, gave a very interesting and instructive clinic of orthopedic cases following the dinner.

The March meeting of the El Paso County Medical Society was held on March 14. The following program was given: Hay Fever, by Dr. L. A. Conway. Cirrhosis of the Liver with report of clinical cases, by B. E. McGovern. Drs. C. O. Giese and G. B. Webb spoke on the subject of the Early Diagnosis of Pulmonary Tuberculosis as part of the program of the National Tuberculosis Association.

Dr. H. B. McCorkle has been attending the sessions of the American College of Physicians, held in New Orleans, and is now on a cruise to Central America and the canal zone.

WOMAN'S AUXILIARY

Denver Medical Auxiliary had a most profitable and pleasant meeting on Monday, March 19, at Denver General Nurses' Home.

Mrs. Ruth Hammond Ragatz, accompanied by Miss Margaret French, graciously rendered a group of soprano solos: "Oh Ask of the Stars, Beloved," by La Forge; "Spring Dropped a Song Into My Heart," by Fenner, and "The Gift Supreme," by Smith.

Prof. R. G. Gustavson, professor of chemistry at Denver University, gave an interesting address, "The Search for Truth."

After the program many matters of business were discussed.

Among them was an invitation from Miss Hoskins, superintendent of Denver General Hospital, inviting the auxiliary to hold its regular monthly meeting in the parlor of the Nurses' Home. It was unanimously decided to accept this offer.

An invitation is to be extended to the widows of former members of the Denver County Medical Society to become honorary members of our unit.

Mrs. Gengenbach presented plans for procedure of the work we are to do in birth registration. These will be health talks before various clubs in the city—these to be given by auxiliary members.

Other education plans are progressing under the direction of Mrs. C. H. Morian.

CORRESPONDENCE

It Is Entirely Up to the Physicians

Dear Editor:

Since taking over the presidency of the State Medical Auxiliary I have met with many handicaps and complications. Hoping that the women who will be asked to "carry on" this autumn may have better cooperation, I am giving this explanation:

In an attempt to effect county organizations, we found some of the physicians objecting to their wives affiliating with the Auxiliary. One county society voted against such an organization.

To the physicians who have taken this antagonistic attitude, I want to say that physicians' wives live in the background more truly than any other class of women.

But the social welfare work requested of the Auxiliary is a reflection of the hopes, desires and ideals of the most outstanding medical men of our country.

To the "conscientious objectors" who think their wives are doing this purely for pleasure, I would like to enlighten them to the contrary, and hence the explanation of "Why the Auxiliary."

In days gone by humanity was not concerned with his "in'ards" until something went wrong, then he would search for relief and cure. With growing knowledge of relationship of germs to disease, the discovery of serums and vaccines, discussion of ductless glands and their functions and other truths about the human anatomy, the average individual has absorbed enough to realize that many diseases are preventable and his cry has changed from "How Can I Get Well," to "How Can I Keep Well." The medical profession is so busy with the technical side of medicine, administering to those who are ill and for "ethical" reasons, has not heeded this cry.

Others less qualified have answered, and the "Bran and Sawdust Dietitian," the "Drugless Healer," the "Electric" belt faker, the "Adjuster," the "Cancer" specialist, have all stressed the virtues of their respective cures, through high powered leaflets, convincing prospectus and full

page advertisements in magazines and daily and weekly newspapers, and the public has swallowed much of it as truth.

These fakers proved by their fat bank accounts that advertising pays. They have gone farther, hiring lobbyists to plead for their own licensing boards, so that they could parade under the banner of legitimacy.

With few exceptions, the only attempt to instruct the people in health has been clinics for the poor, and through syndicated health columns, which for the most part have been furnished by men not qualified, but the press accepted them, because they were all that the press could get to satisfy their readers who clamored for health knowledge.

To help the laity to "learn how to keep well" and refute fake propaganda, the American Medical Association started to edit "Hygeia," but few people knew anything about it except the physicians themselves. How could the good news about this splendid magazine be broadcasted to the world so that they would know that it contained authentic knowledge of "how to keep well" problems.

Doctors could not do it, though they were spending many thousands of dollars to edit this magazine. These men did know that if there could be a way to make contacts with "parent teacher" groups, church groups, Y. W. C. A. groups, libraries, nurses, hospitals, women's clubs, patriotic societies, literary groups; in short, all social ready-made audiences, the gospel of health would spread. Once started, like any good news would travel far, and serve a much needed mission.

Who could or would do this? Not by soliciting, but just telling one's friends about the wonderful magazine that prints the simple facts, and that its aim is to teach the fundamental principles of health.

In St. Louis in 1922, during the A. M. A. meeting, the National Auxiliary was born, at the invitation of the American Medical Association.

The object of the Auxiliary, to be all that its name implies, an aid and reserve force, to do any work assigned to it from time to time by the A. M. A. to lighten the burdens of humanity, to help preserve the health of the people.

To help outline health programs approved by the trustees of the A. M. A., to be presented to other organizations.

To assist in securing authoritative health programs for all organizations.

To assist in providing health talks by prominent physicians and health officers from the county medical societies. To make an effort to raise funds to place subscriptions to Hygeia in rural and semi-rural schools, in the hands of county nurses, visiting nurses, churches and libraries.

The states to work under national board, who work directly under the trustees of the A. M. A., and a liaison committee appointed by the trustees.

The county units to work under state officials, except where their problems are different; then each county unit stresses its own needs, but anything undertaken is always under the direct supervision of County Medical Society.

"A woman forfeits none of her own happiness nor her family's when she lends a little of her time and influence beyond the confines of her own household."

Her power is made greater and her outlook on life clearer by her contacts.

Just now the A. M. A. has asked the Auxiliary to help the laity to know that Hygeia is being printed. To do this by talking about the magazine, and to put it in the hands of educators everywhere possible. Physicians can aid materially in

this by giving their subscriptions or renewals to the Auxiliary. The commissions allowed by Hygeia to auxiliaries for educational work are very liberal.

The Auxiliary in no way touches the work of the physician, as its mission is to teach people "how to keep well." Even this work is outlined and indorsed by the medical societies.

The Colorado State Auxiliary has given sixteen prizes of subscriptions to Hygeia to county schools for the sale of Red Cross stamps.

They have also sent forty-five subscriptions to rural schools throughout the state and to visiting nurses.

They have arranged for health talks by prominent physicians.

They are giving definite service to the State Board of Health in attempting to raise the percentage of birth registrations.

The county auxiliaries have been asked to visit charity wards of hospitals, taking cheer to the inmates.

To call on wives of new physicians. (This suggestion was made by the Colorado state president, Dr. Sedwick.)

I hope that this little explanation will correct any apprehension on the part of those of you who felt that the Auxiliary might in any way be stepping on your "professional" and "ethical" toes.

If the Auxiliary is to do efficient work it must have the full cooperation of the state and county medical societies, and the wives of its members, for "In unity there is strength."

Herbert Hoover made the statement that if a united effort were made for fifteen years to teach people how to keep well, that civilization would advance three generations—mentally, morally and physically. With the whole-hearted support of the medical profession, the Auxiliary could form the nucleus of health centers, for every community most parents and citizens want the best health standards to prevail, and they would lay aside the differences of opinions and the rest would follow.

Every community could have health centers for health conferences, clinics for mothers, babies and school children.

Most communities throughout the country realize the need and are only waiting for some organization to take definite steps in this direction, then they will save time, money and assistance.

LILLIAN BURNHAM MORRISON,
President Colorado Woman's Auxiliary.

SERUM FOR MUSHROOM POISONING FOUND

A professor at the Pasteur Institute, Paris, has prepared a serum against mushroom poisoning by inoculating a horse with increasing doses of the toxin from four poisonous mushrooms. Hypodermic injections of this serum are said to possess high prophylactic and therapeutic value when given to laboratory animals, according to the Journal of the American Medical Association.

An interesting demonstration of the value of the serum occurred when a family of three was stricken with mushroom poisoning. Their physician was able to secure only enough of the serum to treat the two most severely affected. These two patients recovered; the third succumbed.—Health News.

Social Worker—So you've had nine children altogether.

Mrs. Green—Lordy! Lordy! Wha yo' take me fo', lady? Ah nevah went beyond twins at one time!—Messenger.

REGISTRATION OF BIRTHS

A campaign is being conducted to secure complete birth registration in Colorado. An investigation has shown that no birth certificates are on file for many babies born in the state.

Registration of Vital Statistics is not a fad of doctors and scientists, but a fundamental part of the movement to prolong human life.

The professor of political economy, Yale University, Mr. Irving Fisher, Ph.D., says of Vital Statistics that they are the bookkeeping of health and that we cannot economize health any more successfully than we can economize money, unless we keep books. E. Dana Durand, formerly director of the census, Washington, D. C., says: "It seems to me that there is almost nothing more important in the entire field of statistics than Vital Statistics, because of their direct bearing upon health and consequent welfare of the people."

Will you, therefore, bring this notice before the women of your county through county auxiliaries, clubs, parent-teachers' associations and church circles because registration is one of the most valuable services that can be rendered to a child?

1. To prove age, birthplace and parentage.
2. To establish identity.
3. To prove legitimacy.
4. To show when a child has a right to enter school.
5. To show when the child has the right to seek employment under the child labor law.
6. To establish the right to vote.
7. To establish the right to inherit property.
8. To establish the liability to road duty.
9. To qualify to hold title to and to buy and sell real estate.
10. To establish the right to hold office.
11. To prove the age at which the marriage contract may be entered into.
12. To comply with the law.
13. To establish the birth of American-born children of foreign-born parents.
14. To prevent blindness by prompt medical attention to the infected eyes of the new-born.
15. To prevent infection and mortality among women and save the babies through immediate attention.
16. That the millions of dollars from public and private sources dedicated to the protection of infants, welfare of the young and development of the race may be wisely and intelligently employed.

For some time the public regarded the registration of births and deaths as of interest to the medical profession only, and not important to the general public. As a matter of fact, it is not solely a doctor's problem or merely a public health problem. It is a great social problem vitally important to all classes of persons.

Today, we find not only doctors, but social workers, health officers, labor leaders, employers of labor, business men, insurance men, school authorities, factory inspectors, public officials and lawyers, urging birth and death registration of the people as essential to intelligent government and sound conduct of the people's business.

The Census Bureau of the United States Government.

The United States Public Health Service.

The Children's Bureau of the United States Government.

The Association of Life Insurance Presidents.

The American Bar Association.

The American Federation of Labor.

The American Statistical Association.

The National Federation of Women's Clubs.

The American Medical Association.

The Woman's Auxiliary to the American Medical Association.

The American Child Health Association.

The American Red Cross.

The National Tuberculosis Association.

The Eye Sight Conservation Council of America.

The American Association of Labor Legislation.

A test of the completeness of birth registration in Colorado will be conducted soon by the U. S. Census Bureau. If this test shows that 90 per cent or more of the births are being registered, the state will be admitted to the U. S. Birth Registration Area. All states have been admitted to this area except Colorado, Nevada, New Mexico, Oklahoma, South Carolina, South Dakota and Texas.

Only births on file in the State Bureau of Vital Statistics can be considered in this test. We are counting on every member of the state and county auxiliaries and all doctors' wives interested in auxiliary and state work where no auxiliary exists helping to bring this birth registration campaign before the public and urge all parents to visit their local registrar and make sure their children's births are properly registered.

Endorsed by:

JABEZ JACKSON,

President-elect American Medical Association.

W. A. SEDWICK, M.D.,

President Colorado State Medical Society.

JAMES J. WARING, JR., M.D.,

President of Denver County Medical Society.

J. B. CROUCH, M.D.,

President of El Paso County Medical Society.

MRS. C. S. MORRISON,

President Woman's Auxiliary to State Medical Society.

MRS. T. MITCHELL BURNS,

President Woman's Auxiliary to Denver County Medical Society.

SHERMAN WILLIAMS, M.D.,

President State Board of Health.

MRS. F. P. MORGENTHAU,

Chairman Public Health, State Medical Auxiliary.

BOOK REVIEWS

A Text-Book of Therapeutics, Including the Essentials of Pharmacology and Materia Medica. By Arthur A. Stevens, M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Seventh Edition, Entirely Reset. Octavo of 758 pages. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, \$6.50 net.

The seventh edition of this well-known text has been brought up to date by the inclusion of many of the more recently developed therapeutic measures, has incidentally been considerably revised, and conforms to the latest United States Pharmacopeia (1926).

Among the new drugs considered may be noted ephedrine, insulin, parathyroid hormone, novasurol, hexylresorcinol, thyroxin, potassium bismuth tartrate, stovarsol, ethylene, and the antitoxins for scarlet fever and erysipelas, while brief—perhaps too brief—discussions are given of the action and indications for medical diathermy, transfusion of blood, Roentgen rays, radium and heliotherapy.

The task of keeping to a concise account of the important features of drug action and indications, and of proportioning space to the importance of

the drug discussed, has been well done; though it might be questioned whether useful paper might not have been saved by omitting such drugs as convallaria, adonidine, conium, papain and a few others. Any work of this sort is open to much captious criticism from any whose therapeutic habits differ from those of the author; but it is perhaps permissible to question the statement (page 76) that atropine "has little or no effect on normal intestinal peristalsis"; that (page 237) such drugs as turpentine, juniper, cantharides, etc., ought generally to be used in inflammation of the urinary tract; the suggestion (page 297) of arsenic paste for the removal of epithelioma; while those who find focal infections a not infrequent explanation of puzzling therapeutic problems will regret that a search for these, especially in the paranasal sinuses, was not included among the "underlying causes" in chronic pharyngitis, asthma, pyelitis and Sydenham's chorea.

Despite these comments, the author has maintained throughout an unusually sane and well-balanced view of the uses and limitations of the drugs and therapeutic measures discussed, and includes comprehensively, though briefly, the salient points in the management of most important diseases. This edition can be highly recommended as well for ease of reference and readability.

C. N. MEADER.

Bronchoscopy and Esophagoscopy. By Chevalier Jackson, M.D., Professor of Bronchoscopy and Esophagoscopy, Jefferson Medical College; Professor of Bronchoscopy and Esophagoscopy, Graduate School of Medicine, University of Pennsylvania. Second Edition, Reset. Octavo of 457 pages with 179 illustrations and 10 color plates. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, \$8.00 net.

This edition has many features not included in the first edition. A number of the chapters have been re-written, and one notable feature is the addition of new names to the reference list. We especially noted references to the work of the late Dr. H. L. Lynah.

The book is about one-third larger, and contains many new illustrations. It will be found useful to students and general practitioners, as well as to the Oto-Laryngologist and Bronchoscopist.

Dr. Jackson and his co-workers are especially to be congratulated on this new edition.

T. E. CARMODY.

Diseases of the Mouth. By Sterling V. Mead, D.D.S., Professor of Oral Surgery and Diseases of the Mouth, Georgetown Dental School; Professor of Diseases of the Mouth, Georgetown Medical School; Oral Surgeon to Georgetown Hospital; Dental Surgeon to Providence Hospital; Consulting Oral Surgeon to Casualty Hospital; Consulting Dental and Oral Surgeon to Shady Rest Sanatorium, etc. Washington, D. C., with 274 original illustrations in the text and 29 full page color plates. St. Louis: The C. V. Mosby Company, 1927.

This book of five hundred seventy-five pages is a beautiful example of the printer's art. The two hundred seventy-four illustrations and the full page color plates are exceptionally well executed and the reproductions of radiograms retain the detail of the negatives with unusual faithfulness.

The subject matter is presented in a good and orderly sequence which makes the book a desirable text book for students as well as a useful reference book for practitioners.

The author's rules in relation to the extraction of pulpless teeth seem sound as well as conservative. His warning to the medical profession as to

what the loss of teeth involves is timely.

The reviewer deplors the author's use of the word pathology as well as his use of the term upper maxilla. However, these are minor considerations in such an excellent work.

GEO. R. WARNER

Ophthalmoscopy, Retinoscopy and Refraction. By W. A. Fisher, M.D., F.A.C.S. Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College; Formerly Professor of Clinical Ophthalmology, University of Illinois; Formerly Surgeon, Illinois Charitable Eye and Ear Infirmary; Formerly President, Chicago Ophthalmological Society; Member Illinois State Medical Society; Chicago Medical Society; Chicago Ophthalmological Society; American Medical Association; Fellow, American College of Surgeons; Fellow of the Academy of Ophthalmology and Oto-Laryngology. Second Revised and Enlarged Edition. With 260 Illustrations, Including 48 Colored Plates. Philadelphia: F. A. Davis Company, Publishers, 1927. Price, \$3.75.

The author in his usual style, has produced something unique as a small text-book on the subjects covered. He believes that the general practitioner should do more refraction, so he tells him how to do it. This has always been a disputed question, probably because the refraction work done by most general practitioners is so very poor. We agree with Fisher that the subject is simple enough and that the average physician should be able to refract better than the optometrist. Maybe he will after reading Fisher's book.

MELVILLE BLACK.

Applied Bio-Chemistry. By Withrow Morse, Ph.D., Professor of Physiological Chemistry and Toxicology, Jefferson Medical College, Philadelphia, Second Edition, Revised and Reset with the Cooperation of Joseph M. Looney, M.D., Assistant Professor of Physiological Chemistry, Jefferson Medical College. 988 pages with 272 illustrations. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, \$7.00 net.

Applied Bio-Chemistry. By Withrow Morse. Revised and reset, with the cooperation of Joseph M. Looney. The book is a second edition of a text by Dr. Morse, published two years ago. This edition has been thoroughly revised and the numerous errors appearing in the first edition corrected. The book represents an attempt to survey the field of bio-chemistry thoroughly. The American literature has been carefully reviewed, but the book still neglects the foreign literature. The book contains the modern work of Irvine on the sugars, the work of Levene on Phosphatides, up-to-date chapters on hydrogen ion concentration, metabolism, blood, and modern analytical procedures. The discussion of electrode potentials is not in sufficient detail to allow one not familiar with the field to master the problem. This lack of detail information on the more difficult phases of the subject of bio-chemistry stands out in marked contrast to the very elementary discussion and description of wash bottles, Florence flasks, weighing bottles, volumetric flasks and dinner pails given elsewhere in the book. Much space is taken up with material of a very elementary nature that might have been used for a fuller discussion of difficult material. The action of sodium and potassium on water is an example. Taken as a whole the book is a valuable one and will undoubtedly find a place as a text book and as a reference book.

R. G. GUSTAVSON.

Nasal Neurology, Headache and Eye Disorders. By Greenfield Sluder, M.D., F. A. C. S. Clinical Professor and Director of the Department of Oto-Laryngology, Washington University School of Medicine, St. Louis. With 167 illustrations, including 2 color plates. St. Louis: The C. V. Mosby Company, 1927.

The name of Sluder is not only associated with the tonsil operation, but through other original work with the progress of otolaryngology. His original monogram entitled, "Concerning Some Headaches and Eye Disorders of Nasal Origin," published in 1919, opened up a new field, theoretical and practical. The present volume is an extension of his former work, much of which is reproduced in this volume, but to which new chapters have been added. Here are found rearrangement, some entirely new deductions and numerous additional original illustrations as well as illustrations from other sources.

In the Chapter on "Vacuum Frontal Headaches," Sluder calls attention to the fact that cases showing clouding of the sinus in the x-ray pictures, but which show no pus in the nose, presented the same clouding after operation even though the symptoms were relieved. This is an important observation that others have made but that obtains additional emphasis through Sluder's authority.

The relief of pain upon the application of cocaine solution at the point of entrance of the anterior ethmoidal nerve is a diagnostic point that cannot be too frequently repeated. The discussion of asthma is of perennial interest and it is important to note that Sluder's experience leads him to conclude that "the lesion that has produced asthma as a complication has been the post-ethmoidal-sphenoidal, either hyperplastic or suppurative." A great variety of pains in remote parts of the body which he reports relieved by cocaine applied to the nasal ganglion leads the author to discuss the importance of the sympathetic nervous system and the effect of sympathectomy. This tempts him to speculate on the phenomena of reflected pain; how this may be explained. Unusually remarkable results have been noted, such as the relief of tonsil pain by painting the anterior end of the middle turbinate with cocaine. The author's antrum operation is elaborately described and more fully illustrated than in the first publication. A chapter on "Orbital Abscess" is worth while and his case histories to which many new ones have been added make suggestive reading.

Perhaps the chapter entitled "Some Neurological Problems in Rhinology" more than anything else stamps Sluder as an original and bold thinker. It is questionable whether he can satisfactorily prove many of his hypotheses. Nevertheless they are based upon much study, anatomical and clinical.

A very complete bibliography has been added which is most valuable to the student and investigator.

The reviewer sees one danger in attributing so many clinical phenomena to the nasal ganglion. In this day of rhinological operations, and especially sinus surgery too optimistic a report of cures by injection and surgical intervention leads to disappointment.

On the whole this work of Sluder's is so stimulating in its text and so illuminating in his discussion of certain obscure conditions that it should be read and thoroughly digested by internists and neurologists as well as oto-rhino-laryngologists.

R. LEVY.

NEW BOOKS

The Surgical Clinics of North America. (Issued serially, one number every other month.) Volume 8, Number 1. (Lahey Clinic Number—February, 1928.) 210 pages with 74 illustrations. Per clinic year (February, 1928, to December, 1928). Paper, \$12.00; Cloth, \$16.00 net. W. B. Saunders Company, Philadelphia and London.

Local Anesthesia. By Geza de Takatas, M.D., Asst. Prof. of Surgery, Northwestern University, School of Medicine, Chicago, Ill., with an introduction by Allen B. Kanavel, M.D., Prof. of Surgery, Northwestern University, Medical School. Octavo of 221 pages with 117 illustrations. Cloth, \$4.00. Philadelphia and London: W. B. Saunders Company, 1928.

Aluminum Compounds in Food. Including a Digest of the Report of the Referee Board of Scientific Experts on the Influence of Aluminum Compounds on the Nutrition and Health of Man by Ernest Ellsworth Smith, Ph.D., M.D. Fellow and Former President, New York Academy of Sciences, Fellow of the New York Academy of Medicine, etc., etc. Paul B. Hoeber, Inc., New York, 1928. Price, \$7.00.

Muscle Function. By Wilhelmine G. Wright, Boston, with a Foreword by J. Playfair McMurrich, Professor of Anatomy, University of Toronto: Paul B. Hoeber, Inc., New York, 1928. Price, \$3.50.

Asthma, Its Diagnosis and Treatment. By William S. Thomas, M.D., Associate Attending Physician in Immunology, St. Luke's Hospital, New York. Twenty Illustrations in Black and White and Six in Color: Paul B. Hoeber, Inc., New York, 1928. Price, \$7.50.

The Mechanics of the Digestive Tract. An Introduction to Gastroenterology. By Walter C. Alvarez, M.D., Associate Professor of Medicine, University of Minnesota (The Mayo Foundation) with One Hundred Illustrations. Second Edition; Paul B. Hoeber, Inc., New York, 1928. Price, \$7.50.

Pharmacotherapeutics Materia Medica and Drug Action. By Solomon Solis-Cohen, M.D., and Thomas Stotesbury Githens, M.D. D. Appleton and Company: New York and London. 1928.

Safeguarded Thyroidectomy and Thyroid Surgery. A Manual Designed as a Practical Guide for the General Surgeon. By Charles Conrad as a Practical Guide for the General Surgeon by Charles Conrad Miller, M.D., with Fifty-two Illustrations. Philadelphia: F. A. Davis Company, Publishers, 1928. Price, \$3.75.

Handbook on Diet. By Eugene E. Marcovici, M.D., Formerly Assistant to Professor von Noorden in Vienna; Instructor, Post-Graduate Hospital; Assistant Attending Physician, Roosevelt Hospital. Out-Patient Department, New York. Philadelphia: F. A. Davis Company, Publishers. 1928. Price, \$3.50.

Tonsorial

"Do I need a neck shave?"

"No, but your face needs a haircut."—Webfoot.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 11, 12, 13, 1928.

OFFICERS, 1927-1928

President, William A. Sedwick, Denver.

President-elect, Samuel B. Childs, Denver.

Vice-Presidents, 1st, James M. Lamme, Walsenburg; 2nd, W. B. Hardesty, Berthoud; 3rd, R. H. Finney, Pueblo; 4th, R. B. Porter, Glenwood Springs.

Secretary, F. B. Stephenson, Denver.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association:
Senior, T. E. Carmody, Denver, term expires 1928; **Alternate,** Ralph Johnston, La Junta, term expires 1928; **Junior,** O. M. Gilbert, Boulder, term expires 1929; **Alternate,** B. B. Blotz, Rocky Ford, term expires 1929.

Councillors:

	Term expires
District 1. Ella A. Mead, Greeley	1930
District 2. G. P. Lingenfelter, Denver	1929
District 3. John R. Espey, Trinidad	1928
District 4. W. W. Crook, Glenwood Springs	1931
District 5. A. W. Robbins, Durango	1932

Constituent Societies, Times of Meeting, Secretaries
Arapahoe County—Last Monday of each month; secretary, P. C. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, Lawrence L. Hick, Delta.

Denver County—First and third Tuesday of each month; secretary, O. S. Fowler, Denver.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Edgar C. Webb, Canon City.

Garfield County—Last Thursday of each month; secretary, O. F. Clagett, Rifle, Colo.

Huerfano County—Third Thursday of each month; secretary, J. F. Baca, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, F. A. Humphrey, Fort Collins.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, E. H. Peterson, Grand Junction.

Montrose County—First Thursday of each month; secretary, J. A. Spring, Montrose.

Morgan County—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Geo. Sorensen, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. R. Blalock, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, H. W. Averill, Greeley.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Work: J. J. Waring, chairman, Denver; J. B. Hartwell, Colorado Springs; William Senger, Pueblo.

Committee on Local Arrangements: E. D. Downing, chairman, Woodmen; J. A. Sevier, Colorado Springs; W. W. Wasson, Denver.

Committee on Credentials: F. B. Stephenson, chairman, Denver; H. W. Snyder, Denver; F. R. Spencer, Boulder.

Committee on Public Policy: Philip Work, chairman, Denver; Edward Jackson, Denver; C. G. Hickey, Denver; D. H. Coover, Denver; W. T. H. Baker, Pueblo; P. J. McHugh, Fort Collins; C. A. Ringle, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver (term expires 1928); C. S. Elder, Denver (term expires 1929); W. H. Crisp, Denver (term expires 1928).

Auditing Committee: G. C. Cary, chairman, Grand Junction; O. E. Coleman, Denver; Florence Fezer, Greeley.

Committee on Necrology: W. A. Palmer, chairman, Castle Rock; H. R. Bull, Grand Junction; C. H. Graves, Canon City.

Committee on Medical Education: J. J. Waring, chairman, Denver; Maurice Rees, Denver; L. H. McKinney, Colorado Springs.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; M. Ethel V. Fraser, Denver; C. W. Streamer, Pueblo.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: C. O. Giese, chairman, Colorado Springs (term expires 1928); Maurice Rees, Denver (term expires 1929) O. S. Fowler, Denver (term expires 1930).

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EDITORIAL NOTES AND COMMENT

I WANT TO BE A SURGEON BUT OUGHT I TRY TO BE ONE?

It is a common idea of most medical students while in the pursuit of their medical courses that surgeons are the top of the scientific ladder.

The young student has a desire, which is almost all consuming, to want to become a noted surgeon. Honestly, as we recall our college days, it really seemed that to most students the surgeons were the gods of the faculty.

The professors of chemistry, physiology, pathology, etc., etc., were all respected and even loved, but to the outstanding surgeons we all stood in reverence and to most of the students they were our ideals.

How we as freshmen and sophomores longed to be granted the privileges of the juniors and seniors in attending the clinics and operations of our surgeons. We loved to compare and discuss the relative importance of our surgeons as compared with those of other medical schools in the city and of other cities near our college.

Perhaps it was the audacity and resourcefulness of the surgeons which prompted us to want to follow in their footsteps in later life. We are sure it was not from a financial viewpoint because we as students knew little about what fees were being received as most of the cases we saw operated upon were at the County Hospital and elsewhere, and no fees were received. But we believe at least 75 per cent of the younger classmen deep down in their hearts cherished the hope that some day we would be known as surgeons.

But ought medical students say 75 per cent of them ever try to become surgeons? No.

It requires above all a natural mechanical mind to produce a surgeon. The student who does not have a natural love to fix things no matter how small and simple they may appear, will never make a success as a surgeon.

In the college days of thirty years ago the bicycle was the favorite mode of transportation to and from college and to the hospitals. An examination of the mechanical condition of these bicycles would have shown just who ought to have been encouraged to take up surgery for their life's work and who ought not to have considered such a course. Surely a man who could not keep his bicycle in perfect running condition would ever be able to understand and repair that master machine, the human body.

And yet the mad desire is by no means run out. Take the conditions of the average city of twenty-five thousand to fifty thousand and a large percentage of the doctors try to be surgeons, I do not mean minor but major operators. Here you will find a new really competent and skilled surgeons, but besides the few a dozen or two of misfits, who ought to cut out the idea that they are capable and allow the few who can do good, clean, conservative and constructive surgery do this and they devote their lives to other fields of the subject of medicine. This idea is not intended to apply to medical undergraduates only, but can and ought to apply to a larger percentage of the men now in active practice. Consider the possibilities of improvement by these men.

We never quit studying and trying to improve ourselves. The field of children's diseases, obstetrics, skin diseases, heart, lungs and nervous diseases. Why not take up one of these lines of usefulness and by special study endeavor to know more about one of these than any doctor in your community?

You need not give up your general practice, but increase your knowledge and ability so that other men in the profession will refer cases to you in your special line.

We owe it to ourselves and to the public to chop off the heads of about four-fifths of the surgeons now inflicting themselves on the American public or at least point out the importance of other lines of usefulness in the great subject of human illness, its prevention and cure.

E. W.

NEWS ITEMS

Dr. B. V. McDermott of Hanna was appointed a member of the State Board of Health by Governor Emerson. Dr. G. M. Anderson, who was the efficient state health officer before the new governor took charge, has resigned recently and Dr. McDermott takes Dr. Anderson's place on the board.

Dr. W. H. Roberts and wife of Sheridan have just returned from a trip in the Southland where they spent a pleasant vacation after which the doctor visited the clinics in New York, Baltimore and Chicago.

Dr. J. E. Carr has recovered from his recent illness and has resumed practice.

NORTHWESTERN WYOMING MEDICAL SOCIETY

The regular meeting of this Society was held as a banquet at the Codium in Cody, Wyo., on Thursday, Feb. 2, at 8 p. m.

In the absence of the president, Dr. Pierce, the vice president, Dr. Lewellen, called the meeting to order. Since the secretary, Dr. Gassman, was delayed by an accident to his car, Dr. C. E. Harris was appointed secretary pro tem. The reading of the minutes was omitted.

No old business could be transacted because of the lack of the minutes, and the meeting proceeded to the order of the new business.

Dr. Horsley of Lovell gave a very complete paper on Epidemic Cerebro-Spinal Meningitis, thoroughly covering our knowledge of meningitis up to the present time. He spoke briefly of the results which he obtained in the recent epidemic in Lovell, both in the matter of treatment with serum and in the matter of preventive inoculation. No case had developed among the 1,080 persons who had been protected by the three inoculations of Meningo-bacteria.

Dr. Croft's report on the Lovell epidemic in which twenty-nine cases had occurred up to this time covered in detail the various types of disease which he had seen. These varied from the

fulminating type and abortive type to cases of moderate severity. He stressed the necessity of an early diagnosis by spinal puncture and prompt treatment with Meningococci Serum. Specimens of spinal fluid were shown illustrating the rapid diminution of turbidity under repeated injections of the serum.

A general discussion of both papers followed in which all the members present took part. Each man presented his experience with the disease, and in all discussions the questions of quarantine, carriers and prophylactic vaccination received special emphasis. It was conceded that the action of Dr. Mills in establishing a quarantine against the infected district had been a wise move. While Dr. Horsley and Dr. Croft had very definitely established the efficacy of preventative vaccination as far as this epidemic was concerned, it was the feeling of the meeting that these results should not be considered generally conclusive.

There being no further business, the meeting adjourned upon motion.

CHESTER E. HARRIS,
Secretary Pro Tem.

HOT SPRINGS COUNTY—A PROBABLE NEW SOCIETY

On Thursday of this week, March 8, a gathering of some ten Hot Springs county doctors gathered at the Hopewell Hospital at Thermopolis at a surprise dinner, given in honor of Dr. A. G. Hamilton's 40th anniversary of graduation in medicine. A wonderful dinner was served and table decorated with flowers. The two hours were spent in the most enjoyable manner and numerous topics were discussed, for the betterment of the profession along several lines, most especially was the discussion of forming a Hot Springs County Medical Society.

Several members of the Northwestern Wyoming Medical Society were present, and we bemoaned the fact that at most of our Society meetings that there were never more than seven or eight present at these meetings, due largely to members being scattered over three or four counties.

The meeting took form of an organization, Drs. Carter Jewell and Wilson were elected as a committee of three to confer by letter with the secretary of the State Medical Society. With the ten doctors present as charter members, the next meeting to be held Tuesday, March 13, as guests of Dr. Carter at his residence.

The following are the names of those present: Drs. Hamilton, Carter, Jewell, Hale, Metz, Mokler, Wilson, Sturgess, Gassman and Pierce.

DR. J. D. WILSON,
Secretary Pro Tem.

HOSPITAL FOR CRIPPLED CHILDREN, UNIVERSITY OF CHICAGO

The Home for Destitute Crippled Children of Chicago is to transfer its main hospital to the campus of the University of Chicago, where new buildings, providing 100 beds, will be erected. Part of the present plant of the home will be maintained as an emergency hospital and free dispensary for the west side. The hospital will remain under the jurisdiction of the institution but the university will provide the medical care. This is the fifth hospital for children's work now connected with the university, and its addition means another step toward establishing a clinic similar to those in Vienna and Berlin.—U. S. Department of Labor.

TUNING IN

THE LESLIE DANA MEDAL

The fourth award of the Leslie Dana Medal, presented annually through the Missouri Association for the Blind to the person selected from the nominations received by the National Society for the Prevention of Blindness, will take place during the 1928 meeting of the American Academy of Ophthalmology and Otolaryngology, in St. Louis, Mo.

Nominations will be received by the National Society for the Prevention of Blindness, together with detailed information prompting the nomination, until the 15th day of May, 1928. The medical profession and ophthalmological societies are invited to submit names of persons deemed worthy of this honor to the National Society, under the conditions set forth in the deed of gift, as follows:

(a) Long meritorious service for the conservation of vision in the prevention and cure of diseases dangerous to eyesight.

(b) Research and instructions in ophthalmology and allied subjects.

(c) Social service for the control of eye diseases.

(d) Special discoveries in the domain of general science or medicine of exceptional importance in conservation of vision.

The recipient of the first medal awarded (1925) was Dr. Edward Jackson of Denver. The second annual award (1926) was to the late Miss Louisa Lee Schuyler of New York City, and the third award (1927) was to Dr. Lucian Howe, until recently of Buffalo, now of Cambridge.—National Society for the Prevention of Blindness.

MAKING A DOCTOR

In the olden days the problem of medical education was solved in a very simple manner. The prospective physician merely apprenticed himself to some local medical celebrity and then proceeded to prosper for a variable length of time on warmed over gruel and the crumbs from the doctor's table. Meanwhile he pursued a rather haphazard course of study which made him an ex-officio party of the first part to whatever was perpetrated in the name of medical practice in the neighborhood. With the passing of time he might expect to awake some day to find himself the doctor of the community by reason of his mentor's demise. In instances where the old doctor lacked sufficient sportsmanship to die, there remained but one course for the apprentice to pursue and that was to move to a less densely populated portion of the countryside. There, in the hinterland, a new shingle was raised and for all practical purposes another doctor had been born. Those who deemed it their duty to spend more time in preparation for such arduous tasks as country practice involves, supplemented this personal instruction with a visit to the leading clinics of some nearby large city. At the time we are speaking of this meant New York, Philadelphia, Boston or Baltimore.

Such was the state of medical education in this country only a little more than a half century ago. Since then a dozen separate new sciences, allied and important to medicine, have originated, and, of course, refinements and elab-

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oration in medical education have occurred, as indeed they have in education in general.

All in all the net result has been that there has come about a most tremendous congestion in educational traffic. Happily the medical profession has recently become aware of the possibilities of applying the motion picture film to the problem of medical education.

The American College of Surgeons, under the leadership of Dr. Franklin Martin, has gone officially on record in favor of the project, and other members of that organization have done much in an individual way to contribute to the general cause of medical movies. In a recent questionnaire to medical colleges, I listed a positive response of over seventy per cent. to the question as to whether the medical colleges canvassed approved of the idea. Moreover, as a member of the National Board of Review, a physician, and one interested in the application of films to science, I note with appreciation the endeavors of the National Board of Review to seek out and introduce into all educational fields the motion picture film.

Isolated and fragmentary films on matters of medical interest have been made from time to time in the past. I believe, however, that the successful future of the medical film lies closely parallel with the printed literature of medicine, for, after all, the film is a potential form of literature. In time it will acquire form and style just as paper literature has. Monographic films on medical topics—complete dissertations on one particular subject and its related details, will undoubtedly lead the way; next, films, co-ordinated series of cinema lectures, will eventually evolve and finally complete motion pictures courses on various special phases of the medical art, will add the final stone to the edifice of medical education. — J. F. Montague, M.D., F.A.C.S.

RELATION OF THE DEATH RATE FROM SCARLET FEVER TO THE PREVALENCE OF THE DISEASE

That the type, or the virulence of a disease may determine its death rate to a much greater extent than does its mere prevalence, is shown rather strikingly by the facts for scarlet fever for the year 1927.

Among the policyholders of the Metropolitan Life Insurance Company the death rate for this disease last year declined to three per 100,000, the lowest ever recorded by a considerable margin. Nevertheless, figures recently published by the United States Public Health Service show that in thirty-seven states (which are presumably typical of conditions in the entire country) there were nearly 16,000 more cases of scarlet fever reported in 1927 than during 1926 and 23,000 more than in 1925. Among Metropolitan Industrial policyholders, who constitute more than one-seventh of the total population, and who are represented in every state, the scarlet fever death rate declined twelve per cent. in 1927 over the figure for each of these two years, notwithstanding the increase of cases of this disease, in the general population, of eleven per cent. over 1926 and seventeen per cent. over 1925.—Statistical Bulletin.

My Most Embarrassing Moment

"I took my boy to church for the first time, and when the surpliced choir entered, he asked: 'Are they all going to get their hair cut, dad?'"

Immunize Your Patients Against Hay Fever Now!

"—and these signs of Spring should remind us that early Spring and Summer Hay Fever will soon start recurring among many of your patients, Doctor. This is just the right time for prophylaxis."

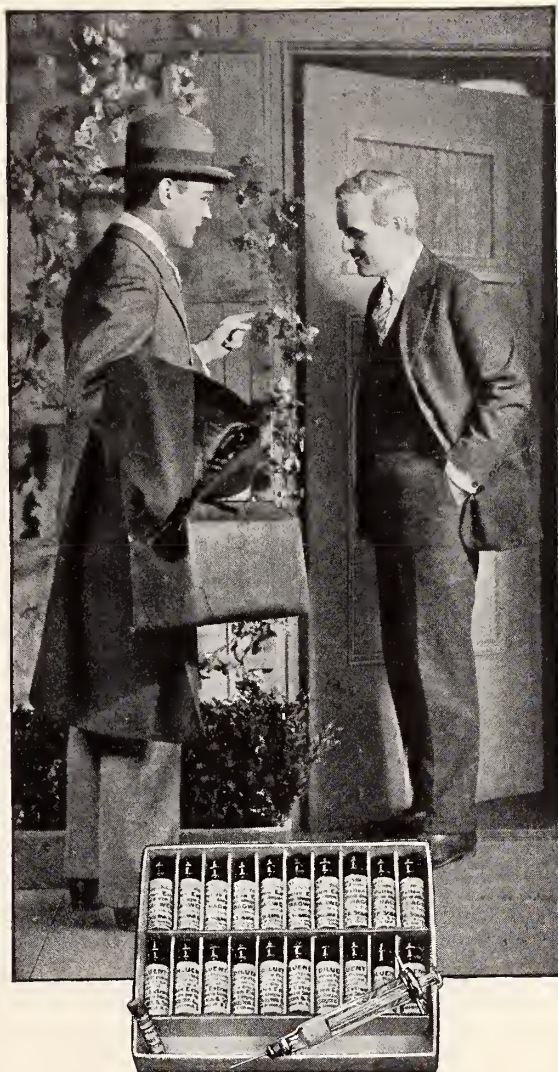
PRE-SEASONAL desensitization of hay fever patients, it has been found, is much more successful than attempts to relieve the condition after the symptoms have developed.

Since treatments should commence from five to six weeks before the expected onset, it is advisable to immunize your patients at this time.

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SURGEON GENERAL WARNS AGAINST VACCINATION SHIELDS

Surgeon General H. S. Cumming of the United States Public Health Service has recently issued a warning against the use of vaccination shield. Studies covering several years show that shield or dressings are causes of severe "takes." They also delay healing and produce conditions which are favorable for the development of tetanus which is caused by accidental contamination of the vaccination with soil, dirt, dust, etc. It is pointed out that the vaccinated spot will usually retain its natural covering of skin and develop a dry scab if no shield is used and a small, proper type of insertion has been employed. If an open sore develops, an antiseptic dressing may be applied for a few days. This dressing should be large and attached to the arm by adhesive strips loosely placed as far from the vaccinated site as possible.

It may be added that the use or recommendation of shields by physicians in connection with vaccination is forbidden in New York State by regulations promulgated by the state commissioner of health.—Health News.

CHAMBERS OF COMMERCE SHOULD HAVE HEALTH COMMITTEES

Two four-page health bulletins, sponsored by the committee on administrative practice of the American Public Health Association, have recently been sent to local Chambers of Commerce by the insurance department of the parent body, the Chamber of Commerce of the United States.

This is part of a co-operative health program for commercial organizations, which is being developed by the American Public Health Association, National Association of Life Underwriters, United States Public Health Service and the Civic Development and Insurance Department of the Chamber of Commerce of the United States. The bulletins contain suggestions received from these organizations.

The titles of the two bulletins are "The Health of the Business Man," and "Health and Community Prosperity." The former sets forth the advantages of annual health examinations. The latter calls attention to the great economic loss due to preventable illness and death, shows how chambers of commerce can aid in the work of lowering the incidence of the diseases and concludes with this significant paragraph:

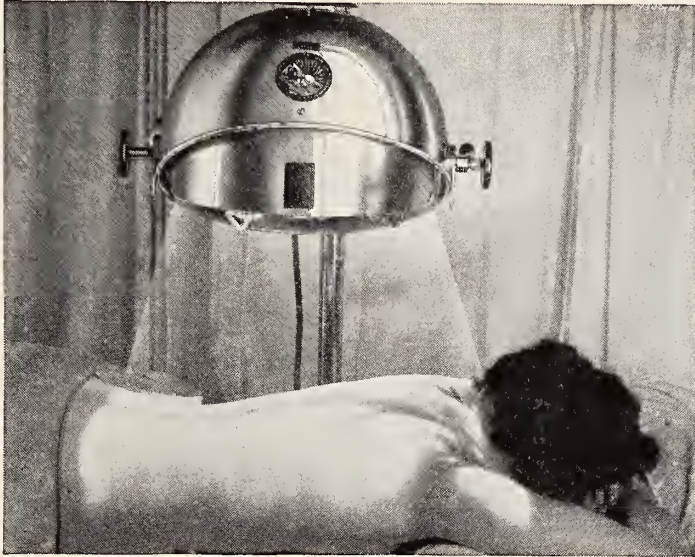
"Public health is a business proposition involving the financial interests of every citizen. Many communities have not yet learned that the best possible health of every citizen can be bought very cheaply. To chambers of commerce an opportunity is presented for participating in the control of a number of diseases which annually cause numerous deaths throughout the country. Trade associations may likewise be of service to their members by suggesting health programs for the benefit of employees, with particular reference to any disease peculiar to the business in which the members are engaged. Suggestion may be made for working out health programs in industry and commerce and simple budget prepared. Business men's organizations which are participating in this work have learned to their advantage that good health is good business."—Health News.

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FEDERATION ENDORSEMENT OF THREE IMPORTANT MOVEMENTS

At the recent annual meeting, the Federation adopted a definite policy on three important questions, one pertaining to interstate licensure, and the other two relating to educational requirements. In adopting a resolution approving interstate endorsement of licensure in place of some form of reciprocal agreement between states, it is recognized that endorsement is a more appropriate term than reciprocity. Furthermore, the state board of a state where a physician has been practicing is the better judge of his professional qualifications and fitness to practice in some other state. The resolution also included a recommendation that the uniform endorsement blanks approved by the Federation several years ago be generally adopted by state boards.

Official endorsement was given to the quarter system as related to medical licensure. It is evident that the quarter system is in no sense a sacrifice or lowering of standards, and the course of study in the number of months is really greater than in the present curriculum. The student benefits by the quarter system not only in the length of time but also in the use of time which would otherwise be wasted and which permits of too much relaxation. Summer quarters also enable the students to see types of diseases which are less seldom seen in other parts of the year.

The inadequate teaching of preventive medicine in many medical schools has an important bearing on medical licensure and the Federation was well within its province when it resolved to exert its efforts to promote a more comprehensive training in this branch of medical practice.

These three worthy movements are not only deserving of Federation approval, but also they will be better carried out individually through their more intimate association with the other two.—Bulletin of the Federation of State Medical Boards.

RED CROSS MEMBERSHIP

According to data gathered by the League of Red Cross Societies, the approximate adult membership of National Red Cross Societies in 1927 mounted to 8,678,342. The Junior membership was 10,012,411, making the total 18,690,853. Of the total membership the United States had 8,913,814, so that the rest of the world had less than ten million enrolled members, adult and junior. Next to the United States, Japan has the largest total enrollment, 3,590,292; Italy comes next, with 1,720,000; Germany is third, with 1,270,284. These four societies alone report membership in seven figures.

The list comprises fifty-four societies under the Red Cross. There are, however, five other societies—The Turkish Red Crescent, the Persian Red Lion and Sun, the Russian Red Cross, the Egyptian Red Crescent and the Dominican Red Cross; but membership figures of the latter are not available. Throughout the last year many of the Red Cross Societies made intensive campaigns to increase their membership, so it can be confidently expected that when the total figures for last year are available the senior and junior enrollment in Red Cross and affiliated societies throughout the world will show more than 20,000,000.—Red Cross Courier.

Colorado Medicine

Published by the Colorado State Medical Society

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C. F. KEMPER, M.D., Denver, Colorado.

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EDITORIAL NOTES AND COMMENT

THE SPECIALTY OF GYNECOLOGY*

A man of fifty-two was this Howard Kelly. He had reached the zenith of a surgeon's power. His experience was already rich, his mind acute, inquisitive and active. His position as a professor at Johns Hopkins was the most exalted in the United States. His name was familiar in every gynecological clinic in the world. One distinction remained when all seemed exhausted. The unerring brush of Sargent was to place his portrait beyond decay in the great picture "The Four Doctors"—Welch, Halstead, Osler and Kelly. He believed that medicine had been developed by specialists. By their labors facts were accumulated, coordinated, clarified and simplified. With the final simplification the specialty became a specialty no longer. It was ready to be returned to the general practitioner from whom it originally came.

After McDowell had successfully removed an ovarian cyst the surgery of women took a rapid pace. The reason was not hard to find. The genital organs of woman are of social importance but of the least possible individual value. One might say they were of no individual value did not the ovaries hold a place in the endocrine balance. There was nothing in the abdomen which could be so safely attacked by the surgeon except the archaic appendix. No one imputed any pathological importance to that innocent looking remnant. Here was the eligible field

for clinical experiment in abdominal surgery. It was not neglected. As an illustration of surgical zeal there were no fewer than one hundred and fifty operations devised for retroversion of the womb. They rival in ingenuity as they do in uselessness any other surgical invention. Each one taught us something about abdominal surgery. The residue was always wholesome. Gynecology became, therefore, the manger in which abdominal surgery was born. Over it a star arose which gave wise men their direction.

Gynecology seemed quite full grown when Kelly was fifty-two. It was time to return it to general practice. He began writing a book. It was to be so clear in statement that it could be readily comprehended by men removed from the specialty which he himself was beginning to outgrow. He knew how to work and how to delegate work. He drew help from the most helpful sources. From across the sea he called Max Broedel medical artist supreme. When "Gynecology" appeared so clear in prose and so matchless in illustration the specialty of diseases of women made its farewell performance. True, it reappeared here and there, now and then, as farewell performers always do, but the end was not far removed. Several revisions of the book have since appeared. The one before us, the author declares, is to be his last book. What does it contain that was not in the earlier editions? What has been the growth of gynecology in these twenty odd years? What more is there to say about a subject so well developed long ago? Very much and yet, of that which

*Submitted as a book review of "Gynecology," by Dr. Howard A. Kelly. It is considered so well handled and of such general interest that we are glad to give it editorial space.—Editor.

is specific to diseases of women, very little. New measures of general value need particular application. The x-ray and radium must be assigned their places as therapeutic agents so, too, must endothermy. There is improvement in our knowledge of cancer. Endocrinology is new and holds promise if it disappoints this very day. Backache deserts the gynecologist and joins the orthopedist. This is a sad loss. It has enriched many surgeons who were imbued with therapeutic confidence and credulity. Of improvements peculiar to diseases of woman the greatest is in a more accurate knowledge of the anatomy of prolapse of the genital organs. Shades of Vesalius! Anatomy still yields its treasures. Our knowledge of sterility has received accessions. There has been, as there must continue to be, improvement in surgical methods. All that is new and all that is altered one may find presented faithfully in this new "Kelly." C. S. E.

CHIROPRACTORS AS PHYSICIANS

According to a press report published in the Rocky Mountain News of April 6, 1928, comments upon an interpretation by the Attorney General of Colorado, William L. Boatright, were made by an attorney of Pueblo, Colo., voicing the opinion that chiropractors are physicians.

He is quoted as saying "Under the ruling, 'physician' is not a title referring to a specific profession, but a descriptive term, meaning one who tends the ill, or one who is skilled in the practice of restoring health."

It seems that even the Standard Dictionary may be distorted to satisfy the ideals of chiropractic, since the definition therein contained is "one versed in or practicing the art of medicine, or healing bodily disease, by the administration of remedies."

All of this, however, is beside the more important interpretation of the ruling which pertains to the right to sign death certificates. It is possible that the aspiration to be known as a physician was intensified by the privilege of legally testifying to the cause of death. To permit any one to sign a death certificate where death is legitimate and the result of natural causes and

not proceeding from foul play would occasion no criticism, but the more serious aspect of such a lowering of privilege arises from its remote effect with reference to the records of the Bureau of Vital Statistics. It would seem to us unfortunate should the signing of death certificates be opened to any class of individuals not conversant with the modern development in pathology and that the statistics handed down to posterity should indicate the influence of transitory pathies at the present stage of our scientific attainment.—M.

AN IDLE DREAM

Recently the Denver City and County Medical Society reconsidered ways and means for best promoting lay education in matters of health. Formerly this society sponsored a plan for lectures by its members but objections and difficulties became so obvious that it was soon abandoned. Now the society proposes to empower a well selected committee to dispense such valuable information through the columns of the lay press. The idea is a good one and deserves the careful consideration of every constituent county society in the state. But whether it is tried in Denver, Pueblo, Colorado Springs or any other city, a yawning chasm will separate the idea from its accomplishment. Men worthy of such a committee appointment are busy men. To prepare a "curriculum for the public" on health matters and to provide an efficient faculty, members of which can write truthfully and well, seems to us a large order for a committee of three busy practitioners to fill. There is no doubt that the profession is ready and willing to impart such information and the public is eager to learn, but is it reasonable to think that such a far-reaching social program has a ghost of a chance to succeed by the spare-time efforts of a voluntary committee. It is the same old problem that is encountered in the state society. Our good intentions dissipate themselves for the want of machinery to carry them out. Why continue to clutter up our minutes with such futile resolutions and embarrass honest doctors by asking of them the impossible. It seems to us in this as well as other matters pertaining to the ever-changing social adjustment of the practice of medicine it is time for us as a Society either to "fish or cut bait."

Probably most of use are in sympathy with this experiment of the Denver County Society. But more to the point would be our interest in the creation of some agency which would give such enterprises at least a chance to succeed. The first step in the creation of such an agency would seem to be to provide for and secure a business agent or executive secretary. Until this has been done scarcely a beginning can be said to have been made to carry out the noble plans we so glibly propose.

The state meeting will occur in Colorado Springs, September 11, 12, 13. Is it too much to hope that a majority of the delegates will acquaint themselves with the benefits to be derived from a full time secretary? Not the least of these benefits would be to convert a few of these commendable resolutions into concrete accomplishments.

RABIES PROPHYLAXIS*

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DENVER

Introductory Remarks. Since rabies is recognized by the medical profession and scientists as an acute, infectious disease, communicable to man and beast by the bite of a rabid animal, the question as to the best means of preventing the further spread of this terrifying malady becomes a public health problem of paramount importance.

Centuries before the Christian era rabies was known, feared and dreaded, but only in recent years has there been real progress toward suppressing it. Rabies is usually spread by the saliva of infected animals. About 80 per cent of the cases reported are among dogs; hence, the greatest source of danger is from rabid canines. Preventive and control measures are recognized as closely allied topics, but the subject of this paper deals more particularly with the aspect of prevention; the control phase of this rabies symposium is to be considered by Dr. E. R. Mudge, and diagnosis, by Dr. I. E. Newsum.

Geographical Distribution. Hydrophobia or rabies is known to exist in every country of the world. There are times when the disease becomes epidemic in character, and other periods due to vigilance and stringent methods employed it is less serious. In the United States rabies appears to be on the increase during recent years; whereas, a decade ago it was practically unknown in certain sections of our land. Today through the medium of the automobile tourist travel, the rapid and frequent transportation of both man and his dog from one state to another, the facilities for contact and spread of rabies are greatly accelerated.

Dr. Adolph Eichhorn says:

"As a matter of fact, we have to recognize that from year to year the continuous increase of the spread of the disease has been observed, until it now is a great menace."

In his 1924 report from the New Jersey State Board of Health, Dr. John V. Mulcahy

states there has been a steady increase in the number of cases of rabies in dogs occurring in the state of New Jersey. He reports 250 to 300 persons in that state exposed to rabies during 1924 who took treatment. This official cites a dog known to have traveled approximately 147 miles and to have bitten at least 93 dogs.

The United States Public Health Reports for 1924 record 75 deaths from rabies in man in 22 states, and 1,383 cases in animals in only 12 states reporting. For the year 1925 there were 84 deaths due to rabies in man reported from 26 states, while 1,590 cases among animals were reported from 18 states, an increase of 9 deaths in man, and 207 cases in animals over 1924. During 1926 there were 93 deaths from rabies in man reported from 22 states and 1,761 cases in animals, still an increase of 9 deaths in human beings and 171 cases in animals above the 1925 statistics, a total of 252 deaths in man, and 4,734 cases in animals, during the three-year period. Two deaths from rabies in man are reported in Colorado for 1924, with no cases in animals reported for that year, indicating an incomplete report for this state. Apparently only about one-half of our states reported rabies in man for 1924, 1925 and 1926, while only about one-fourth to one-third report the disease in animals; certainly these are not all the cases in man and animals that actually exist in the United States.

Records from the writer's laboratory in Denver show there were 94 dog specimens received during the six-year period prior to November, 1924, for examination as to the nature of their illness. On November 3, 1924, the first positive case of rabies was diagnosed in this government laboratory; it was confirmed by Dr. Wm. C. Mitchell, state bacteriologist. Since that date a total of 20 positive cases of rabies has been received out of 54 dogs examined for various causes of death. In nearly all instances each of

*This is one of three papers on a Rabies Symposium presented before the Medical Society, City and County of Denver, February 21, 1928.

these dogs had bitten or exposed one or more individuals. One of the 20 rabies dogs came from New Mexico, four from Wyoming, and fifteen from points in Colorado. These statistics do not include the cases received by the State and City Health Departments, to which places cases of suspected rabies, arising within the state sent to our laboratory for the past year, have been referred for diagnosis according to the origin of the dog.

In the Proceedings of Public Health Bulletin No. 167, during the conference of health officers at Washington, D. C., May 24-25, 1926, Dr. Hayne of South Carolina said:

"Fifteen years ago, when I first became State Health Officer, we had about 100 to 200 cases a year. It rapidly rose to 1,031 last year (1925) and so far this year to over 900 people bitten. When you think of the agony of mind of those people, the painfulness of the treatment, the expense, and the fear that they may develop the disease (no reported case ever having gotten well), you can see what the state of South Carolina is confronted with."

Every state in the Union may have similar experiences.

The State Livestock Commissioner of Kansas says that in 16 years of his experience there has been more rabies in the past few months than at any previous time. Reports from health officials from many other sections indicate rabies is on the increase in our country; hence, the issue is not confined to a single town, municipality, county or state, but the problem becomes international in its scope.

Uniform regulations to prevent rabies should be adopted by all state boards of health, health officials, livestock sanitary commissioners, and others charged with the eradication of this disease, and the control of interstate traffic in dogs in our country, Canada and Mexico.

As the result of a "mad dog scare" a single community may develop sufficient public sentiment for a temporary clean-up, even going to the extreme of killing all unlicensed stray dogs and the muzzling or confinement of all other dogs for a brief period of time, yet with the relaxation of quarantine measures and laxity in law enforcement, the old conditions quickly return and sooner or later the same process is repeated. How

unfortunate the low value placed upon human life, and the needless pain, suffering and death that must be endured on the part of innocent children and others to convince the indifferent public that it must protect itself against so terrible a disease as rabies.

Lower Animals Afflicted with Rabies include dogs, cats, horses, cattle, mules, goats, sheep, squirrels, guinea pigs, rabbits, skunks, wolves, coyotes, bobcats, swine, fowls, martens, badgers, foxes and other carnivorous creatures.

Farmers' Bulletin No. 449, entitled "Rabies," issued by the Bureau of Animal Industry, U. S. Department of Agriculture, indicates that about 15 per cent of persons bitten by rabid animals, contract the disease if not treated. The nature, size and location of the wound; the extent of the hemorrhage to wash the bite; protection afforded by clothing; and the proximity to the central nervous system; the virulence of the virus, its dosage and the susceptibility of the individual, are all factors in considering the possibility of infection. From 35 to 45 per cent of dogs, 40 per cent of horses, 36 per cent of swine, and 25 to 30 per cent of cattle bitten by rabid animals, contract the disease if not immunized, making a general average of about 30 per cent. The bite of a coyote is said to be more virulent.

Period of Incubation. The period between the bite of a rabid animal and the appearance of the first symptom in dogs varies from 14 to 285 days or longer, with an average of 3 weeks to 3 months, while in man the incubation period is generally longer than in the dog. The bite of a dog is said to be infectious at least 3 days or more before the symptoms are manifest. While the saliva is the usual source of infection in rabid animals, the milk from a lactating bitch was proven infectious, when injected into guinea pigs and rabbits producing typical rabies. Subjects with normal mucous membranes exposed to saliva or virus from rabid animals should receive treatment. In the presence of sores or abrasions on the lips, in the mouth, or during teething; or lesions in the gastro-intestinal canal, milk or meat from rabid animals when consumed must be con-

sidered dangerous to health. However, experimental evidence shows the normal gastric juice destroys rabies virus; hence, in the absence of fissures or lesions in the alimentary tract little or no danger would be expected, yet one should advise that such food is considered unfit for consumption. Rabies virus introduced into the eye is said to be a very effective method of producing infection. A case of this type of exposure recently came to the writer's attention and vaccination treatment was advised.

Preventive Vaccination in the Human. As anti-rabies treatment is used primarily as a preventive agent only, its administration should be begun at the earliest possible time following the bite of a rabid animal. It is reported that approximately 60,000 persons were vaccinated against rabies in the United States during 1927. The number of failures to protect varies from one-tenth of 1 per cent, to seven-tenths of 1 per cent; certainly an excellent showing for a biological product. Alcoholism, syphilis, neurotic disorders, fatigue, massive doses of the virus, severe facial wounds, in close proximity to the nervous system, and other predisposing causes, are reported as possible explanations for the failure of protection against rabies. To increase its efficiency, vaccine should be administered during the first four days following exposure, and at least before the tenth day.

Through correspondence one biological house reports but a single failure to protect against rabies in 10,000 human vaccinations during 1927. Opposition to human vaccination against rabies is met with in the same class of individuals who oppose vaccination against smallpox, diphtheria or typhoid fever, and it is usually this same group who also refuse to have their dogs treated against this disease. The modified Pasteur treatment or method, devised by Sir David Semple, is gaining in favor and is the vaccine now largely used for protective immunization in human beings. This method involves the use of a killed, phenolized fixed virus, usually made from sheep or rabbit brains, and is considered a safe and efficient anti-rabies vaccine. Daily injections of 14 to 21 doses are prescribed in most instances.

The Pasteur, Harris and Phillips vaccines, all of which are used to a considerable extent in this country, contain living virus at some stage of the treatment. The Höyges method consists in the use of dilutions of living, unattenuated fixed virus.

As a preliminary precautionary measure thorough cauterization of all dog bites with fuming nitric, or pure carbolic acid, should be done immediately following the infliction of the wound pending laboratory diagnosis where this is possible. In the application of such treatment, judgment should be exercised to prevent disfigurement of the body, especially on the face, this treatment alone is not always effective.

Vaccination of Dogs. Since the introduction of the single-method injection perfected by the Japanese scientists, Umeno and Doi, in 1921, designed for dogs not exposed to rabies, it is estimated that 2,000,000 dogs have been vaccinated in the United States. In Japan approximately 500,000 dogs have been treated by the single-method vaccine, with 140 reported developing rabies (.28 of 1 per cent), 48 of these died within 2 weeks, one within 16 days, and one case received a very severe bite. One case in 300 may develop paralysis in vaccinated dogs, probably about the same proportion as in human beings. One investigator reports 3 cases of rabies developing in 350,000 dogs vaccinated by the single injection method. A veterinary hospital in Massachusetts reports 1,000 single treatments without one case of rabies developing. Failure to protect may be attributed to massive infection, deteriorated vaccine, severe bites and wounds and other contributing causes. Dr. F. M. Meader, health officer for Detroit, reports from May 1, 1924, to May 27, 1927, there were licensed in that city 12,918 vaccinated dogs, while 34,164 licensed and unlicensed dogs were left unvaccinated. Of the 12,918 vaccinated dogs, 6 developed rabies, while in the latter unvaccinated lot, 200 contracted the disease, about 14 times as many as in the vaccinated dogs.

The writer recently assisted in diagnosing a case of positive rabies in a dog which had bitten ten school children. It is possible a

single treatment in the dog would have prevented the necessity for 140 injections into human beings.

To effectively immunize an exposed dog, six treatments are usually suggested, although some authorities claim every dog known to have been bitten by a rabid animal should be destroyed without taking the risk of a possible failure. The simple method of Umeno and Doi originally consisted of a 20 per cent suspension of rabbit brains and cords of phenolized virus in glycerine water. Attenuation resulted after holding this product a number of days; by this method 31,307 dogs were vaccinated with but two cases of rabies developing. The disease remained unchecked in the non-vaccinated dogs. Hata reports later results in Japan from vaccinating 104,629 dogs in which 41 cases of rabies developed, while 1,699 of the unvaccinated group developed the disease.

In reporting the results accomplished in his state, Dr. Osborn, health officer of Connecticut, says:

"I feel that rabies has been eliminated due to catching the unlicensed dog, and to vaccination. Vaccination has aided because it has enabled the people who have dogs to have them get tags showing the dogs have been immunized, and they are allowed to remain at large."

He further states: "Muzzling is very unpopular."

Rabies virus is reported easily destroyed by heat, a temperature of 50 C. kills a 5 per cent solution of a fixed virus in 15 minutes. The present method of preparing vaccine for animal inoculation consists of making an 8 per cent dilution of fixed virus in normal salt solution, the virus being killed by adding 1 per cent phenol and held at 37° C. for 24 hours. This product is further diluted before use by adding an equal quantity of sterile salt solution, thus producing a 4 per cent emulsion which contains 0.5 per cent phenol as a preservative. Careful tests are made on suitable animals to test its sterility and safety before the vaccine is offered for use on the market. One writer says:

"Phenolized vaccine prepared from an immunizing fixed virus has proven most effective, and the experience gained in Japan appears that the prophylactic vaccination of dogs should be uniformly approved and recommended."

Regulations Covering the Manufacture and Administration of Rabies Vaccine

Under date of January 27, 1928, Dr. John S. Buckley, Chief, Pathological Division, Bureau of Animal Industry, U. S. Dept. Agriculture, Washington, D. C., writes:

"Relative to measures for the control of rabies, you are advised that licensing, quarantine, muzzling, and destruction of stray dogs when rigidly enforced have been found to be effective means for controlling the disease. Prophylactic vaccination of all dogs in a community has been practiced quite extensively in certain sections, and when used in conjunction with licensing, destruction of stray dogs, and quarantine measures, good results have been reported. As to what part vaccination itself plays in these cases, it is difficult to determine. This office does not endorse compulsory prophylactic vaccination, as it feels sufficient data is not yet at hand to definitely determine the efficacy of vaccination in the control of rabies."

Regarding the interest shown in rabies prevention from a world viewpoint, an international conference was held at Paris, April 25 to 30, 1927, to study this subject, at which conference 29 nations were represented. Data was compiled from questionnaires sent to all the rabies institutes of the world and presented to the conference for consideration. Among other recommendations adopted were the following:

"That the prophylactic vaccination against rabies should be carried out, the vaccination should be conducted with the killed but immunizing virus, or with a fixed virus, either attenuated or unattenuated. Such vaccine should be harmless to dogs upon subcutaneous or intramuscular administration."

"That the vaccination should be repeated annually."

"That cats should not be immunized either before or after exposure."

"Regarding other domestic animals than dogs, it is advisable."

"That the prophylactic vaccination should be carried out only in such localities in which rabies is widely spread."

"That the vaccine be administered in the first four days following the exposure, and at least before the tenth day."

"That animals bitten by a rabid animal should not be slaughtered for food from the eighth day following the bite until the end of the third month, without regard whether they have been immunized or not."

Evidently the recommendations from such a representative body were approved after much deliberation and careful consideration. The administration of vaccine in the lower animals should be conducted under the best of aseptic precautions. In the preparation of human rabies vaccine, biological houses in the United States are under the direct supervision of the U. S. Public Health Service, while the product manufactured and designed for animal use is governed by license and supervision by the Bureau of Animal Industry, U. S. Dept. Agriculture, Washington, D. C.

Correspondence from one biological house states:

"In the manufacture of all our veterinary biologics we exercise just as much care as we do in the production of our human products. No product is released for sale until all requirements of sterility and safety are met."

Suggested Recommendations for the Control and Eradication of Rabies

1. Require licensing of all dogs.
2. Humane destruction of all ownerless and unlicensed dogs.
3. No dog should be allowed to run at large unless properly vaccinated or muzzled.
4. Proper restraint or confinement of all dogs not muzzled or immunized.
5. Compulsory vaccination for dogs as the only method of controlling rabies is not endorsed at this time.
6. The adoption of uniform methods of preventive and rabies control throughout the United States, Canada and Mexico.

7. No other disease requires a more whole-hearted cooperation between the medical practitioner, veterinarian, the public in general, and the law enforcement officer to effectually control and eradicate, than does this terrible malady.

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NOTE: Information of much value was obtained through the courtesy of correspondence from the leading biological houses and personal contact with scientists and veterinarians of the United States.

TUBERCULOSIS CONTROL IN COLORADO*

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DENVER

"The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and externals cooperate."—**Hippocrates.**

As the text of my address I have selected one of the most famous and familiar aphorisms of Hippocrates, the essence of which is encompassed in the word **cooperation**. If in as simple a relation as that between patient and physician a sympathetic and loyal co-

operation is necessary for success, what must we have in a state-wide campaign against tuberculosis, where so many "externals" and "attendants" are concerned?

What is the situation as regards tuberculosis in Colorado? How much tuberculosis have we in this state? Where is it located? How and where does it originate? What is being done to prevent it? How is it being cared for? Can we make more economical and more efficient provisions for the treatment of the resident indigent cases? It will be my effort in this address to answer in

*Read at the 10th annual meeting of the Colorado Conference of Social Workers, September 22 to 24, 1927.

some measure these questions, first by discussing the incidence and distribution of tuberculosis in Colorado and then by appraising according to accepted standards of the American Public Health Association the tuberculosis control work of the city of Denver.

In round numbers, the population of the state of Colorado is about one million people, one-third of whom live in the city and county of Denver. The assessed valuation of the state is \$1,546,830,046. The assessed valuation of the city of Denver is \$443,150,470, a little less than one-third of the total wealth of the state. During the year 1923, which is the last year for which complete mortality figures are given by the United States Census Bureau for Colorado, 1,669 deaths from tuberculosis occurred in the state. Of these deaths 560 or one-third were within the city limits of Denver, and 302 more deaths occurred in the three counties, Jefferson, Adams and Arapahoe, immediately adjacent to Denver. A total of 862 then, or more than half the total for the state occurred in Denver and its immediate vicinity. I have given you these figures because they impress me with the thought that the problem of anti-tuberculosis work in Colorado is largely a Denver problem and therefore its solution in the same proportion Denver's responsibility. In 1923 the death rate from tuberculosis for Colorado was 168 per 100,000 population, the highest of all the states in the United States Registration Area. The death rate for Denver was 209 per 100,000 population and this was exceeded by only one other city in the United States Registration Area. From 1908-1926 the decline in the death rate from tuberculosis in the United States Registration Area (50 per cent) has been greater than in the state of Colorado (43 per cent). However, the decline in the last six years, from 1921-1926, has been greater in the state (22.3 per cent) than in the United States Registration Area (16 per cent).

Miss Burke of the Colorado Tuberculosis Association has prepared a map which shows the population of each county in Colorado and the number of deaths from tuberculosis

in each county during the five-year period 1921-1926, inclusive. This period you will note is the hemi-decade immediately following the period of thirteen years from 1908-1920 included in the "Statistical Study of Tuberculosis Mortality in Colorado," etc., made by the committee of the Denver Sanatorium Association of which Dr. Henry Sewall was chairman and the late Dr. C. D. Spivak, secretary.†

†The other members of this committee were: Dr. G. W. Holden, Dr. A. S. Taussig, Dr. W. N. Beggs and Dr. R. L. Drinkwater.

The total number of deaths for our five-year period was 8,169, an average of 1,634 deaths per year; in the five-year period ending in 1915, the total number of deaths was 8,348, an average of 1,670 per year. The present average is then about what it was in the period 1911-1915. In the five-year period ending 1920, the total number of deaths was 9,688, an average of 1,938 per year. It must be noted first that the population of the state has increased nearly 20 per cent in the interval; and second, that the tuberculosis mortality rate for the United States Registration Area has nearly been cut in half since 1911.

Among additional features of interest on this map may be noted the following:

In the five-year period, three counties, Costilla, Park and Jackson (average altitude of 8,711 feet), with a combined population of 8,642 in not a single instance gave tuberculosis as a cause of death. To draw any inference from this would be unwise. It is possible that tuberculosis is appearing on death certificates as bronchitis, influenza and pneumonia. However, it is interesting that these three counties lie in a direct line north and south through the middle and most mountainous portion of the state: Costilla county lies in the middle southern part of the state known as the San Luis Valley; Park county is almost exactly central in the district known as South Park, and Jackson county lies in the north middle portion of the state, in what is known as North Park.

The northwest counties had only 50 deaths and the southeast counties had a few more than 50 deaths in 1925. The middle-east

counties and the northwest counties had very few deaths in 1925.

The southwest counties, a great mining district, had a high tuberculosis death rate for their population. Probably, pneumoconiosis or miner's phthisis had something to do with this.

Race. Ninety-three per cent of all the deaths were white, including 3 per cent, which were Spanish and Mexican; 5 per cent of the total deaths were colored. The negro population in 1920 was 1.2 per cent of the total for the state.

Sex. Male deaths were 5,297 or 65 per cent, and female deaths 2,869 or 35 per cent of the total.

In order that we might get some idea of the "floating" consumptive population, the cases unsegregated and therefore most likely to be a menace to the public health, we have divided the deaths from tuberculosis into two large groups, one comprising those deaths in institutions such as national sanatoria, state hospitals, city and county hospitals, private hospitals, and the other group comprising all other deaths outside institutions, which we might call the "Unsegregated Group."

Now, of the total of 8,169 deaths, 4,701 or more than half took place outside of institutions. Of these (4,701) in the "Unsegregated Group," 8 deaths took place on trains coming to Colorado; 1,237 (26 per cent) were only one week or less under the care of the physician reporting the death; 1,013 (21 per cent) one month or less and 245 (5.2 per cent) had no doctor. To summarize, of the 4,701 deaths in this "Unsegregated Group" more than half were less than one month under the care of the physicians reporting the deaths.

Of the 4,701 in the "Unsegregated Group," 2,279 or nearly one-half had been in the state of Colorado one year or more and might therefore have been considered, from length of residence in the state, legally eligible for admission to a state tuberculosis sanatorium. It is fair to presume that nearly all of these cases for some months before death were far-advanced cases of ulcerative pulmonary tuberculosis, and that hospitali-

zation was desirable for them for humanitarian reasons. Let it not be forgotten for one moment that this institutional segregation would not only provide decent hospital accommodations and skilled nursing attention for these cases in their last illness but would at the same time remove from the midst of the family circle, composed frequently of many small children, the far advanced and often careless consumptive. To the early tubercular a state tuberculosis hospital offers a chance for recovery, to the far advanced consumptive it provides decent hospital care, to the consumptive's family and to the public at large it provides the protection of a contagious disease hospital and this perhaps is its most important function.

Of the total of 8,169 deaths it was not specified in 2,275 how long they had been residents of the state. Of the remainder, 1,165 or 19.7 per cent had been less than three months in the state before death and the balance, 3,372 or 57 per cent, more than a year, and therefore might be considered, on the basis solely of length of residence, candidates for a state tuberculosis hospital.

Summary

Of the deaths in institutions supported by public taxation:

In state maintained institutions.....	106
In county maintained institutions (Denver, 448)	513
In city maintained institutions.....	38

Total number of deaths in institutions supported by public taxation 657

In other institutions:

In national institutions	1,769
In private tuberculosis sanatoria.....	558
In private general hospitals.....	484
Total segregated	2,811
Unsegregated	3,468
	4,701

Total deaths in Colorado in five-year period 1920-1925, inclusive..... 8,169

Deaths from tuberculosis tabulated according to the length of residence in state:

Resident more than one year and died outside institutions	2,279
Resident more than one year and died in institutions	1,093
Length of residence not specified.....	2,275
Residence in state less than three months.....	1,165
Residence more than three months but less than one year.....	1,357

Total deaths in state 1920-1925, inclusive...8,169

Incidentally, Boulder County Hospital is the only county hospital besides the Denver

General, which has a ward for tuberculosis. My understanding is that provision for isolation and care of active cases of tuberculosis at the State Penitentiary at Canon City and at the Colorado State Hospital for the Insane at Pueblo are inadequate. Dr. Ebaugh at the State Psychopathic Hospital is very keen to detect and isolate or transfer all the consumptive cases entering the State Psychopathic Hospital.

Let us now take stock of what is going on in our own city and begin by attempting to classify Denver by her efforts at tuberculosis control according to the appraisal form for city health work of the American Public Health Association (1925). I will now give the five headings under which ratings are estimated, with explanation of each rating and scoring Denver as I proceed.

TUBERCULOSIS CONTROL

I. **Reporting Ratios:** This item is defined to mean the proportion of cases of active tuberculosis of all forms known to exist in the community to the annual deaths from tuberculosis. Correction should be made, if possible, for residents dying away from the city, and for non-resident deaths and cases. Suspicious and arrested cases should not be counted.

Standard: Five active cases (all forms) on record last year per death last year scores 15 points; not more than one case per death scores 0.

In 1926 in Denver the number of deaths from all forms of tuberculosis was 474, of which 121 were non-resident (less than one year in Denver) and 353 resident. The active cases of tuberculosis reported were 500. A ratio (1.6-1) of considerably less than two active cases per death. Score for Denver one point out of a possible 15.

II. **Field Nursing Service:** This item is defined to mean the number of nursing visits in behalf of tuberculous patients or persons under supervision because of previous contacts with tuberculosis.

Standard: 4,000 home visits per 100,000 population by nurses in behalf of tubercular cases scores 30 points.

How does Denver score?

In 1926 the Visiting Nurses' Association

of Denver paid 76,089 visits on all types of patients, 6,397 visits on tubercular patients, of which 297 were in some measure remunerated, leaving a balance of 6,100 visits to indigent tuberculous cases.

Nursing visits during 1926:

By Dispensary Nurses (6).....	5,468	
By Staff of V. N. A. (28).....	6,397	Free (6,100)
Total	11,865	

If we estimate Denver with a population of 300,000, the standard for the city would be 12,000 visits, Denver has 11,865; and, therefore, scores 30 points.

III. **Clinical Service:** This item is defined to mean the number of visits, for both diagnosis and treatment, to clinics for tuberculosis.

Standard: 5,000 visits per 100,000 population; 15,000 visits per 300,000 population scores 15; less than 5,000 visits per 300,000 population scores 0.

How does Denver score?

The attendance at municipal tuberculosis clinics in 1926:

Adults	2,697
Children	2,079
	4,776

Denver scores less than 5,000 visits per population of 300,000 and therefore scores 0 under this item.

IV. **Hospitalization:** This item is defined to mean the total number of patient-days of hospital care for residents per 100,000 population and is applied whether the hospital be state owned, county owned or municipally owned; or to private hospital care where the payment of charges against patients is, in whole or in part, from public funds.

Standard: 21,000 patient days for cities of 100,000 and over scores 25 points.

What about Denver?

*Free beds in Denver:

Tuberculosis Ward (Denver General Hospital) ..	82
Craig Colony	75
Sands House	34

Total local free beds	191
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Many of the patients of the Craig Colony are non-residents, but it is impossible to separate these. Accordingly, we have credited:

	Patient Days
The Tuberculosis Ward—Denver General Hospital	25,500

The Sands House	12,432
Craig Colony	18,384
Total	56,316

Denver would score 25 points under this item. Note again that corrections have not been made for non-residents.

V. Open Air Rooms, Classes, Preventoria or Day Camps: This item is defined to mean the number of children attending open air rooms, classes, preventoria or day camps, for a period of not less than six weeks.

Standard: 10 children per 1,000 grade school population (public and private) scores 15 points.

With a grade school population of 45,000 Denver should have 450 children attending open air rooms, classes, etc., for a period of not less than six weeks.

*Free beds in National Hospitals:

National Jewish Hospital	264
Ex-Patients' Home (National)	84
Total—National	348
Jewish Consumptive Relief Society (Jefferson county)	250

Denver has had a total of 50 children in two open air class rooms in the public schools. On the average, 75 children annually pass through these open air rooms. From June, 1926, to June, 1927, 48 children were taken care of at the Junior League Preventorium, and 26 (out of 38) at the Preventorium of the National Jewish Hospital. Provision therefore is made for only 149 children instead of an estimated requirement of 450.

Denver scores 5 points in this item.

Denver's final score is thus summarized:

I. Reporting	1 out of possible	15
II. Nursing	30 out of possible	30
III. Clinical Service	0 out of possible	15
IV. Hospitalization	25 out of possible	25
V. Preventorium	5 out of possible	15

Denver's score 61 out of possible 100

Let us now again appraise Denver's tuberculosis control work not according to total population, but according to the local tuberculosis morbidity and mortality rates. This appraisal will show much more accurately the needs of Denver and what she is doing to meet those needs.

I. Reporting: Standard and details as above. Scores for Denver 2 out of possible 20.

II. Nursing: 5,000 field nursing visits

per 100 deaths scores 20 points. Denver has 353 deaths and 11,865 nursing visits. Denver should have 17,650 nursing visits. Denver scores on this item 14 points.

III. Nursing: Twenty per cent of all field nursing should be on behalf of post-sanatorium cases where five points may be scored.

In 1926 the dispensary nurses paid 530 visits on patients discharged from the tuberculosis wards of the Denver General Hospital. A total of 2,373 visits of this nature should have been paid. Score Denver one point.

Patients with active disease returned home from the sanatorium should be visited by a nurse once a week; quiescent cases should be visited once a week; apparently arrested cases should be visited twice a month; all arrested cases should be visited once in three months. Finally, all known cases must be reclassified every three months.

IV. Clinical Service: Three thousand visits to clinics for every 100 tuberculosis deaths per annum scores 15 points.

Denver should show 7,590 visits at the Municipal Tuberculosis Clinics. Only 4,776 are recorded for 1926. Denver scores 10 points.

V. Hospitalization: Twenty-five thousand patient days per 100 deaths scores a possible 15. With 353 deaths from tuberculosis Denver should score a record of 88,250 patient days. Her record is 56,316 patient days. Denver scores 11 points.

VI. Admissions to Tuberculosis Sanatoria: Twenty-five per cent of all admissions to the tuberculous wards must be incipient cases and scores a possible 10 points. Dr. Gelien tells me that none of the admissions to the tuberculosis wards at the Denver General Hospital are incipient. Denver scores 0 on this item.

Denver has a grade school population of 45,000. She should show open air rooms, classes, preventoria or day camp provision for 450 children.

Denver has in

Open air class rooms (2) in public schools 75 children

Junior League Preventorium (June '26-June '27)	48 children
National Jewish Hospital (of 38)	26 children
Total	149 children
Denver scores only 5 points.	

I. Reporting: Denver scores	2 out of possible	20
II. Nursing: Denver scores	14 out of possible	20
III. Nursing: Post-Sanatorium Follow-up Denver scores	1 out of possible	5
IV. Clinical Service: Denver scores	10 out of possible	15
V. Hospitalization: Denver scores	11 out of possible	15
VI. Incipient Admissions: Denver scores	0 out of possible	10
VII. Open Air Rooms: Denver scores	5 out of possible	15
Denver's total score for Tuberculosis control	43 out of possible	100

Summary

This appraisal form is vastly more revealing than the former one, but it takes no account of measures for rehabilitation. Follow-up work on post-sanatorium cases and rehabilitation are, of course, vitally important parts of our modern tuberculosis campaign. By the old method of appraisal based in certain items largely on population Denver scored 61 per cent; based on the much fairer standards of service per 100 tuberculosis deaths, Denver scores only 43 per cent. I have scored Denver according to both methods because the former shows fairly well what Denver is doing and the latter what Denver is not doing.

Public Health Nursing Situation in Colorado

The number of public health nurses employed in the state of Colorado is about 114. One-half of these are doing no tuberculosis work. The nurses working in the counties and in the schools of the smaller towns have no nursing supervisor to whom they may turn for help. The state has no state supervisor of public health nursing. The State Board of Health employs only one public health nurse and her time is occupied almost entirely with the Division of Social Hygiene. The Colorado Tuberculosis Association employs two nurses, the Denver Tuberculosis Dispensary four Nurses' the Visiting Nurses' Associations of Denver, Colorado Springs, Pueblo and Leadville employ forty-two nurses, but I cannot tell you how much of their work is for the care of the indigent tuberculous. It would be helpful if the State Tuberculosis Association would secure this information. The United States Veterans' Bureau employs six nurses. The Red Cross provides nursing supervision for nurses

working under Red Cross chapters. The supervisor for Colorado covers also Nebraska and Wyoming.

A broad general view of the anti-tubercu-

losis campaign in Colorado reveals very clearly a sad delinquency on the part of the State and Municipal Health Departments, due most likely to insufficient provision of funds. On the other hand, private organizations although almost overwhelmed, are carrying on a magnificent work everywhere. The State Tuberculosis Association is nobly carrying the battle into the counties and is worthy of every support. The Denver Tuberculosis Society, under a very efficient secretary, guided by a few devoted physicians and loyally supported by a handful of laymen, has a remarkable record of achievement in the public health education field. I would stress the importance for better cooperation between the State Board of Health and local health organizations, for closer cooperation between municipal health departments and private health organizations, and finally for a generous, warm hearted alliance of private organizations. With the organization of a Municipal Tuberculosis Bureau under a competent director and free from political interference, the sad muddle of "tuberculosis control" in Denver will be immediately clarified. Every effort and every influence should be brought to bear to effect immediately this manifestly wise, business-like reformation.

I am indebted to Miss Helen Burke, Executive Secretary of the Colorado State Tuberculosis Association, for most of the data contained in this article.

The 13th annual convention of the Catholic Hospital Association of the United States and Canada and the second annual hospital Clinical Congress of North America will be held in the Cincinnati Music Hall, Cincinnati, Ohio, June 18th to 22nd, inclusive, 1928. The fourth annual convention of the International Guild of Nurses will be held at the same time, in the same building, at night meetings.

HUMAN TETANUS IN COLORADO

IVAN C. HALL, Ph.D.*

DENVER

Department of Bacteriology and Public Health, University of Colorado School of Medicine

(Continued from last month)

The Colorado cases also impress one with the frequent failure of patients to consult a physician sufficiently early as well as the failure of physicians to recognize the danger of tetanus following wounds and to protect against it by means of a prophylactic dose of antitoxin.

They further show that physicians frequently fail to recognize the premonitory symptoms of tetanus until its too late to secure any benefit from antitoxin. And at least in one case (No. 11,176—1926) no effort to eliminate the focus of infection by debridement, was made.

Some interesting general observations may be made upon the cases described.

Inspection shows the following predisposing causes:

Wounds in feet.....	5
Wounds on hands.....	3
Broken arms	2
Frozen feet	1
Burned fingers	1
Appendectomy	1
Influenza and pneumonia.....	1
Unknown	1

All were males but two. The age distribution was interesting and may be significant. For while the youngest was four and the oldest sixty-five, eight were under twenty and six were over thirty. Only one was between twenty and thirty years of age. The series is, of course, too small to justify attaching any great significance to the distribution into two main groups, but the same tendency is apparent in the age distribution of 1,644 deaths from tetanus in the registration area⁸ for 1923. I do not venture any explanation of the fact at this time.

All of the recorded cases originated upon the plains section of Colorado; none has been reported from the mountainous portion of the state; the geographical distribution coincides mainly with the density of popula-

tion. Thus Denver, with approximately one-third of the population of the state, had exactly one-third of the cases.

The number of cases is doubtless too small for adequate statistical treatment, but if we estimate the population of the state of Colorado at roughly one million, an average of 4.7 deaths per year for the three years studied gives a mortality rate of 0.47 per 100,000, which is actually a little better than the mortality rate in New York state in 1925, which was 0.54, as reported by Nicoll⁹. Both rates are better than the rate for the registration area in 1923, which was 1.77⁸.

Distribution of B. Tetani in Nature

B. tetani has a wide distribution in nature. According to Noble¹⁰ it has been recovered from cultivated and uncultivated soil, street dust, hay dust, mud, fresh and salt water, the bilge water of ships, gun wads, wearing apparel, and the intestinal tracts of man and various animals. McCoy, Leake and Corbitt¹¹ found it in court plaster and Theobald Smith¹² found it in gelatin. I believe that the "casual observations" of Dubovsky and Meyer¹³ which were really incidental to the determination of B. botulinus in soil give an erroneous idea of the distribution of B. tetani; they found only 19 positive results out of 2,379 specimens—less than 0.1 per cent. And since 397 specimens from nine eastern and midwestern states furnished eighteen cultures of B. tetani, while only one culture came from 991 specimens collected in the western states, they concluded that "B. tetani is less prevalent in the soil of western states than in that of the eastern and middle western states." This is a dangerous conclusion and should not be allowed to lull us into a sense of false security. Even their special study of 624 specimens of California soil which gave negative results must be challenged; Miss Peterson and I¹⁴ proved B. tetani to be present in 4 (20 per cent) out of 20 California soil samples; on this basis they should have had

*M.D. was incorrectly used in place of Ph.D., in April issue.

125 cultures. Fildes¹⁵ in England recovered cultures from 33 out of 70 specimens of soil.

While the horse has long been regarded as the principal reservoir for tetanus bacilli, we have only recently appreciated that man himself is frequently a carrier of this organism. The carrier condition was probably responsible for the so-called "ideopathic" tetanus as in the pneumonia and appendicitis cases already cited. Three years ago I had the experience, during a survey of the oral cavity for anaerobic bacteria, of recovering a strongly toxigenic strain of *Bacillus tetani* from the mouth of my own daughter, then a healthy child of 10 years¹⁶. This was, I believe, the first time that the tetanus bacillus had ever been recovered from the mouth and it suggested the possibility of tetanus following faulty extractions of teeth. But a thorough search of dental literature showed only two cases, one of which may not even have been true tetanus. Meranon and Velarde¹⁷ have recently called attention to two additional cases.

Pizzini¹⁸ in 1898 demonstrated tetanus in five out of one hundred specimens of human feces, by guinea pig inoculation. Later Tullock¹⁹ isolated *B. tetani* from the feces of 7 out of 21 men returned from war service and from 6 (16 per cent) out of 31 civilians in England, while Tenbroeck and Bauer²⁰ found that 34.7 per cent of 78 individuals in Peking were carriers and that "one individual may eliminate several million spores of tetanus bacilli in a single stool." Curiously the majority of persons who are tetanus carriers also have tetanus antitoxin in

their blood, but while the sera of thirty persons in whose stools no tetanus bacilli were found were also free from antitoxin, several of them had agglutinins for tetanus bacilli. Tenbroeck and Bauer²¹ concluded that "the relatively low incidence of tetanus in North China is due in part to the fact that the majority of the population have a potential immunity because they carry or have carried tetanus bacilli in their intestinal tracts." Tullock²² in 1917 first showed that although there was only one tetanus toxin and one antitoxin, there were three agglutinating types of tetanus bacilli. Later Tullock²³ added fourth and fifth types. Bauer²⁴ found no cultures of Type II or Type IV in China, but Type V was common. Fildes²⁵ found all but Type IV among 75 newly isolated cultures in England, over half of them being Type V. Some of Fildes' strains were non-toxic and there may be some question as to their actual identity. Bauer and Meyer²⁶ have just completed a study of 487 fecal specimens from residents of California of which 24.6 per cent were positive for tetanus spores. In addition 9 cultures were recovered from forty-three specimens obtained from nineteen other states. Type VI of Tenbroeck and Bauer has not been found in this country, but three strains were isolated which Coleman and Meyer²⁷ regard tentatively as an eighth group.

The following table shows the frequency in percentage of the several types encountered by various workers in different countries:

FREQUENCY OF TYPE CULTURES OF *BACILLUS TETANI*

Authors—	Countries—	Sources—	No. of Cultures	Percentage of Types							
				1	2	3	4	5	6	7	8
Tullock ²²	England	Human Feces	12	75.0	16.7	8.3	---	---	---	---	---
Tullock ²³	France	War Wounds	127	47.2	19.7	25.5	3.9	0.8	---	---	---
Fildes ²⁵ *	England	Pns from Cases	6	50.0	---	33.3	---	16.6	---	---	---
		Horse Feces	25	24.0	20.0	24.0	---	32.0	---	---	---
		Human Feces	2	---	---	---	---	100.0	---	---	---
		Soil	13	---	7.7	30.8	---	61.5	---	---	---
Bauer, Tenbroeck et al†	China	Feces of Man and Animals	261	8.0	6.5	19.9	0.4	59.4	3.8	1.9	---
Bauer and Meyer ²⁶	California	Human Feces	120	65.0	7.5	17.5	2.5	5.0	---	?	2.5

*Toxic cultures only counted.
†Compiled from Bauer and Meyer²⁶.

Immunity in Tetanus

Tenbroeck and Bauer²⁸ have very recently shown that tetanus free guinea pigs, when fed a single serologic agglutination type of *B. tetani*, will develop considerable amounts of antitoxin in their sera and become immune to the type fed, though to other types of *B. tetani* they are just as susceptible as controls. The immunity of carrier pigs toward tetanus infection appears to be due more to the agglutinating properties of their blood than to its antitoxin content. Animals fed several types are immunized to each of these types and it is probable that the digestive tract of man may carry several types, and he probably reacts in a manner resembling the guinea pig carriers.

Coleman and Meyer²⁹ also studied the serum of 104 individuals in California for agglutinins. Twenty-one serums showed no agglutinins at 1-10 or higher, while 83 positive results were obtained in serum dilutions ranging from 1-10 to 1-60 for one or more types. Fifty-three serums (50 per cent) showed agglutinins at 1-20 or higher dilutions. Seventeen serums agglutinated three types at 1-40 to 1-60. One serum agglutinated three types at 1-40, one two types at the same titre, and one five types at varying dilutions up to 1-40. Serum agglutinins for the new type of Bauer and Meyer²⁹ occurred four times at 1-10 dilution. But no antitoxin was found in any serum.

While it is highly desirable that these findings be confirmed and extended in other parts of the country, the known facts suggest that *B. tetani* is probably present in the intestinal tracts of approximately one-fourth of our population and should caution us against assuming that it is unnecessary to use tetanus antitoxin in suspicious wounds in any section of the country. They suggest that operations upon the intestinal tract should perhaps be guarded by means of polyvalent antisera with both antitoxic and agglutinating qualities for the tetanus bacillus. They even suggest the feeding of tetanus cultures as a means of wholesale immunization, which might be a practical emergency measure in the prophylactic immunization of armies in war time, but not one

which can be sponsored conscientiously at present in civil populations.

In France, there has recently been considerable investigation of the possibility of active immunization against tetanus by the oral ingestion of tetanus toxin and antitoxin. The methods of transforming toxin into the harmless, but still antigenic, anatoxin, among which treatment with bile has proven most successful, are described by Ramon, Berthelot, Grasset and Amoureux³⁰. Ramon and Grasset³¹ have shown that 7 cc. of tetanus toxin, of which 1/500 cc. kills when inoculated subcutaneously, may be given orally to a rabbit without harm. By the eleventh day, antitoxin of such strength that 1 cc. of serum neutralizes two fatal doses for the guinea pig, appears in the blood. If one treats the rabbit previously with 2 to 3 cc. of bile before giving the toxin, the rabbit develops generalized tetanus and dies in about forty-eight hours with grave lesions in the gastric and intestinal mucosa. But if the toxin is treated with bile before it is administered, no such result follows, yet the antitoxin appears in the blood. Whether these animal experiments may eventually be applied to man is still uncertain; preliminary tests made by Ramon and Zoeller³² were unsuccessful. More promising results might be expected from the subcutaneous inoculation of balanced toxin-antitoxin mixture as in diphtheria, but the feasibility of this in a disease of such low incidence is too remote for practical consideration.

Summary

Case histories, more or less complete, of fifteen cases of tetanus occurring in Colorado during the years 1924, '25, and '26 are given. Of these fourteen were fatal, but of the fatal cases nine possibly might have been saved by the early recognition of the danger of tetanus and the timely use of tetanus antitoxin. An additional case arising outside of Colorado and successfully treated in Denver is described.

The average mortality from tetanus in Colorado during the years 1924, '25, and '26, was about 0.47 per 100,000 population.

The distribution of these cases as to char-

acter of wound, age, and locality is discussed briefly.

Recent work on the distribution of *Bacillus tetani* in the intestinal tracts of man and animals and the problem of active immunization is reviewed.

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The Meat Situation in 1927

According to the annual estimates of meat production and consumption prepared in the Bureau of Animal Industry, the total production of meat in the United States during 1927 declined 373 million pounds in comparison with the preceding year, the totals being 17,245,000,000 pounds for 1926 and 16,872,000,000 pounds for 1927. The decline was wholly the result of the restricted supply of beef. It occurred, too, notwithstanding a substantial increase of 352 million pounds in the pork supply. In other words, the increase in pork was insufficient by about one-half to offset the deficit in beef. Actually the decrease in beef amounted to 632 million pounds, or 8½ per cent. Lamb and mutton production was practically the same in both years. A decline of 200 million pounds in the total meat available for consumption in 1927, together with the normal increase in population, accounted for a decrease of 3½ pounds in the per capita consumption of all meats, which fell from 142.8 pounds in 1926 to 139.3 pounds in 1927.—U. S. Department of Agriculture.

EXTENSIVE CEREBRAL TRAUMA WITH RECOVERY

With Report of a Case

PHILIP WORK, B.S.M.D.

Considering the prevalent opinion that gunshot wounds extensively involving the brain substance are usually immediately fatal, or if perchance not, they leave the unhappy individual permanently incapacitated either physically, mentally or both, the following case is of interest:

That even a small calibre bullet should traverse a cerebral hemisphere from frontal to occipital pole, be later removed and the patient survive without demonstrable organic damage is in itself sufficiently remarkable. That the individual should then, within the next five months undergo seriatim a purulent meningitis, the formation and drainage of a deep cerebral abscess and another purulent meningitis and finally recover with no damage ascertainable nine-

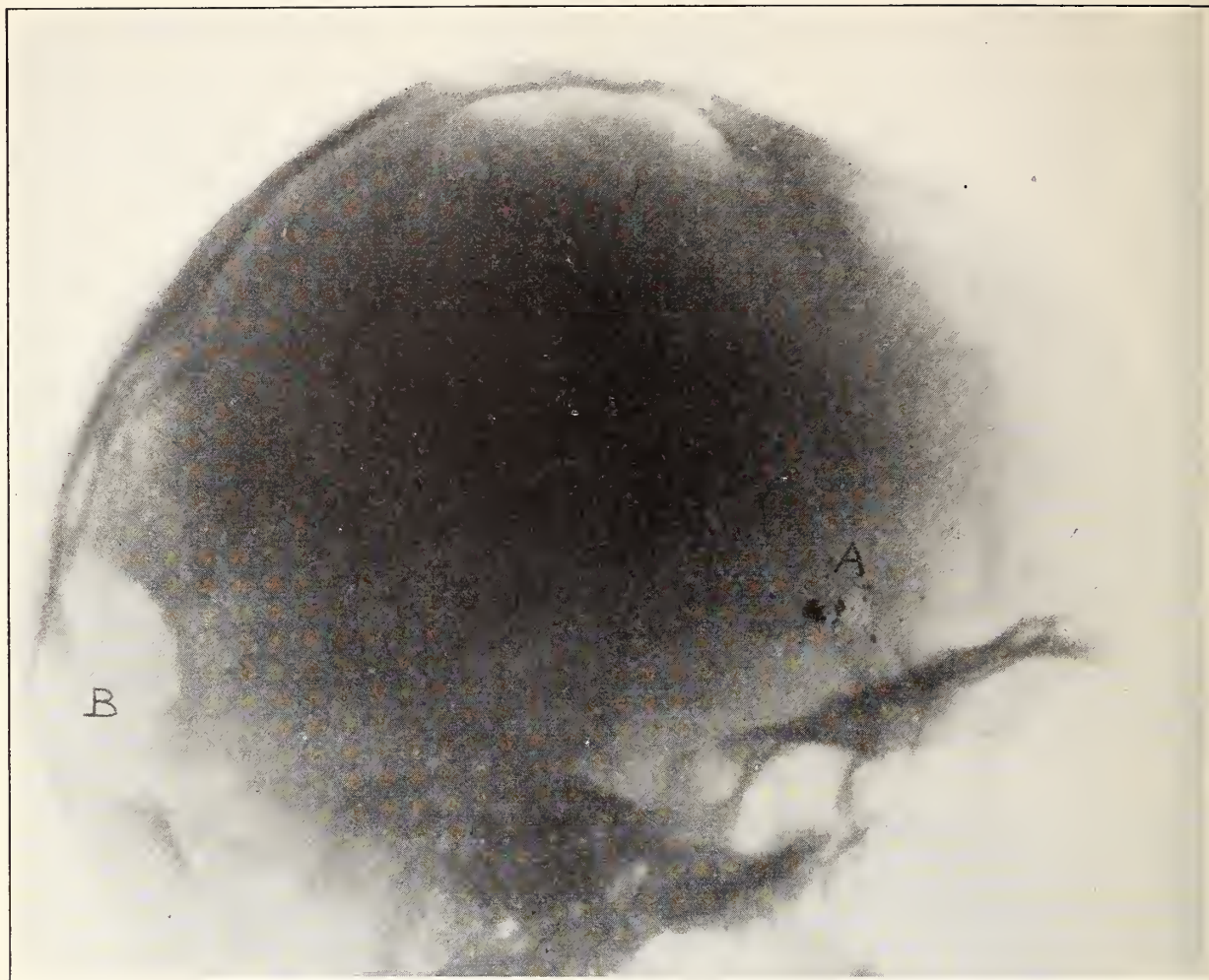
teen months later except a small and decreasing cerebral hernia and a homonymous hemianopsia borders on the incredible.

Because radiographic studies by Dr. L. G. Crosby indicated that the bullet had followed a straight course through the hemisphere the following effort was made to visualize its probable pathway. A rigid needle was passed through a presumably normal brain previously hardened in formalin between points analogous with the wound of entrance and the place where the bullet was seen in radiographic studies to have left the brain and impinged upon the occipital bone. It seems incredible that the bullet should have followed the course thus traced, possibly there was some distortion in the hardened brain, but the needle which entered the



Before Operation

- | | |
|---|-----------------------------|
| A. Wound of entrance, with lead spatters. | C. Bullet in last position. |
| B. Marker. | D. Bullet impact mark. |



After Operation for Bullet Removal
A. Entrance wound.

B. Trephine opening with organized material
just inside.

brain cortex just in front of the anterior border of the middle fossa as did the bullet, passed just outside the lenticular nucleus at the level of the body of the corpus callosum, traversing the optic radiation, it passed through the posterior limb of the internal capsule, through the posterior horn of the lateral ventricle, and the radiation of Gratiolet.

Whatever may have been the actual course of the bullet, when the case was first seen 72 hours after injury the only symptoms were stiffness of the neck and lumbar region, photophobia and vari-colored scintillations in both visual fields. There was no hemianopsia at this time.

The extent of the abscess later formed could not be accurately determined because of the patient's poor general condition and stupor, but at operation over 40 cc. of pus was recovered.

Case Report

Charles V., aged 11 years, was accidentally shot July 21, 1926; a .22 cal. long rifle bullet entering the skull from the front one inch above the outer canthus of the right eye. (See Fig. 1.) There was no wound of exit. He was never unconscious but vomited and complained of violent headache and intense photophobia with moderate pain in the lower back on movement. No sphincteric disturbance.

On July 24th he was transported 150 miles to Denver and placed under the care of Dr. Leonard Freeman, with whom I saw him during the subsequent course and to whom I am indebted for permission to report the case. At this time (72 hours after injury) he was conscious and rational, complaining of headache and photophobia with stiffness of the neck. Pulse 90. Temperature 99. (It had never been above 101.) Urine and blood pressure normal. Blood count showed WBC 9500 with 73 per cent polys. There was no facial paralysis, ophthalmoplegia or nystagmus. The right eye-ground was moderately congested and there were absolutely no other neurologic findings. Lumbar puncture was not done.

Stereoscopic radiographic studies by Dr. Crosby gave the following report: "The bullet has entered the skull near the upper anterior border of the middle fossa on the right side (Fig. 1-A) and has traveled backward and a little downward to the inner table of the occipital bone about three-quarter inch to the right of the mesial plane (Fig. 1-D) and thence rebounded a short distance (Fig.

1-C). There are a few minute fragments of lead distributed along the track of the bullet a short distance from its point of entrance." (Fig. I.)

In view of the possibility of a septic meningitis, removal of the bullet was deferred till July 29th, when it was removed through a trephine opening directly over it. (Fig. II-B.) It was readily evacuated in the midst of about two drams of clot and broken down brain substance. The wound was closed with drainage.

The patient did well till August 2nd when he manifested the classical signs of meningeal irritation. Lumbar puncture showed an opalescent spinal fluid with 5900 cells, largely polymorphonuclears and a few clumps of staphylococci which failed to grow on various culture media. This meningitis subsided without residual trouble after three days' treatment with intravenous injections of urotropin, together with frequent spinal drainage.

He left the hospital well August 17th, except for an unexplained inability to fully open his mouth. (This later gradually disappeared.)

September 19th he began to complain of generalized headache and stiffness of his left arm and leg. This condition gradually progressed till on September 29th he was completely rigid on the left side with occasional unilateral tetanic convulsions with temporary loss of consciousness. He complained that day of diffuse headache, projectile vomiting, loss of control of bladder and bowels and for the first time of an inability to see to the right. Radiographs failed to show any probable area of abscess formation, but did disclose as had the former ones, inborne particles of lead and bone, well down toward the center of the brain. This fact, together with the symptomatology, inclined toward the belief that an abscess existed at or near the internal capsule, probably about the knee. Operation was advised.

September 30th Dr. Freeman removed a piece of bone the size of a silver dollar over the right motor area. The dura was tense and bulging. An aspirating needle inserted one and a half inches toward the knee of the internal capsule brought out over forty c.c. of thick greenish yellow pus which proved to be sterile. The wound was closed with drainage into the abscess cavity and the symptomatic improvement was rapid in all respects except as regards the hemianopsia which still exists. Drainage persisted for over six weeks.

Two weeks after the abscess had been opened it was noted that the occipital wound through which the bullet had been removed was beginning to herniate. This progressed till after six weeks it was the size of a large duck egg, and was very sensitive to pressure. He said that the slightest pressure would make him see many colored lights and promptly faint. It was so tender that he could not wear a hat. By the time he was discharged from hospital, Nov. 10th, all symptoms had disappeared except the hernia, the hemianopsia and a headache which appeared on exertion.

January 1, 1927, he again had a sterile purulent meningitis similar to the other attack which cleared up under the same treatment without sequellae.

February 1, 1927, he re-entered school but soon complained that reading gave him a headache and nausea. He was referred to Dr. Wm. Sedwick, who provided him with a refraction which has given him complete subjective relief ever since. Dr. Sedwick made the following report as of March 1, 1927: "Tension, pupils and accommodation, normal. External ocular muscles show 2 degr. esophoria and $1\frac{1}{2}$ degr. left hyperphoria. Fundi show normal vessels. Right disc normal. Left disc shows a slight paleness, probably begin-

ning atrophy. Visual fields show complete left homonymous hemianopsia. (There has been no failure in visual acuity since then.) Vision then OD 15/16, OS 15/13.

Today, nineteen months after the initial accident, the hernia cerebri has subsided to the level of the skull, he admits no discomfort and has regained with excellent grades over half the time lost in school work.

No attempt is made, in view of the fact that there has been no autopsy to theorize on the pathologic process which has occurred, but the boy has no functional disability, even alleging that his hemianopsia no longer bothers him since he has learned to allow for it.

DRY HEAT STERILIZATION IN MEDICAL PRACTICE

CLOUGH TURRILL BURNETT, M.D.
DENVER

In a recent paper, Dr. William C. Finnoff¹ calls attention to a sterilization procedure commonly followed by French surgeons; namely, the dry heat sterilization of instruments. The author refers to the experimental work of Morax in France and to that of Amory and Prescott in this country and outlines in detail his own procedure.

The writer suspects that this method is in much wider use in this country than the literature would seem to indicate. An early and long experience in the bacteriological laboratory taught me that, suitably controlled, this method had many advantages over any moist heat sterilization method, principally in that instruments of various sorts could be prepared for use ahead of time with assurance of bacteriological sterility and without danger of damage to the instruments. During a period of about fifteen years I have followed this method in the preparation for use of all needles and syringes employed in any manner in medical practice, as for blood cultures, intravenous and intramuscular injections, for the special needles employed in diagnostic and therapeutic thoracentesis and for those used in the induction of pneumothorax. During this entire period I have not had occasion to question the sterility of the instruments used, but during the earlier period careful bacteriological checks were repeatedly made. Furthermore, I found that needles retained their sharp points for a much longer period than under moist heat sterilization. I em-

¹Ref. "Dry Sterilization for Eye Instruments." Dr. W. C. Finnoff, *Amer. Jl. Ophth.* August, 1927, Vol. 10:8.

ploy a thermostatically controlled electric sterilizer at $150^{\circ} + C$. for one hour, about twice as long as experimental evidence indicates is necessary for satisfactory preparation for surgical use. In making this statement I am not overlooking the well-known fact that a temperature of $160^{\circ} C$ at one and one-half hours is a recognized requirement in sterilization of glass ware for culture media. This, however, is a somewhat different question, since the most resistant spores are found in the non-pathogenic group and are of importance only in connection with culture contamination. Needles, syringes, etc., are placed in suitable glass tubes and closed with either a cotton plug or cork. Sterile Petri dishes are used for the reception of needles, obturators and other things which are to be guarded from fouling during use. These petri dishes are wrapped in paper as in any bacteriological laboratory and sterilized in the same manner. Towels, etc., may likewise be wrapped in paper, sealed and sterilized with these other utensils, but thick packages should be penetrating qualities of moist heat. The avoided since dry heat does not possess the paper wrapping also has the advantage of keeping all equipment free from dust accumulation for an indefinite period.

This method of sterilization is especially adapted to the needs of one who does not have need of an elaborate surgical equipment but on occasion requires sterile instruments for immediate use.

NEWS NOTES

Dr. and Mrs. Leonard Freeman and Dr. and Mrs. J. N. Hall have just returned from a cruise of the Pacific, having visited points of interest in the Hawaiian Islands, Japan and China.

It is learned through the lay press that Dr. E. L. Sadler of Fort Collins died of an acute illness of only a few days' duration.

Recently the Weld County Hospital Association dedicated the new Community Hospital which is supported by the county. A banquet was given to mark the completion of this hospital. Among the guests at this dinner were Dr. G. L. Strader of Cheyenne, Dr. and Mrs. P. J. McHugh of Fort Collins, Dr. and Mrs. Philip Hillkowitz, Dr. and Mrs. C. S. Elder, Dr. and Mrs. Frank B. Stephenson and Dr. and Mrs. Philip Work of Denver.

Dr. and Mrs. Atwater Douglass left Saturday, April 28th, for a short visit to their old home in Maine. They expect to return about May 20th.

Dr. and Mrs. W. C. Finnoff have announced the arrival of a son.

WARD T. BURDICK

The Medical Society of the City and County of Denver has sustained a severe loss in the untimely death of Dr. Ward Burdick. In his many years of service to the medical profession in the capacity of clinical pathologist he endeared himself to all who came in contact with him and none could help but admire his gentleness of character and amiability of disposition.

Dr. Ward Thomas Burdick was born April 5, 1880, in McKane county, Pennsylvania. He graduated from the National University of Arts and Sciences, in St. Louis, Mo., in 1908 and located in Colorado in 1911. Soon after his arrival he became interested in clinical pathology and devoted the rest of his life to this branch of medicine. He served successively as laboratory director in the National Jewish Hospital, in the Denver General Hospital and Children's Hospital. In all these positions, he earned the esteem of his colleagues by his ability, industry and conscientiousness. To the members of the medical profession of Colorado he has rendered valuable services by the papers that he contributed on the technique of the Wassermann reaction and other scientific essays.

Dr. Burdick's share in the furtherance of scientific medicine of the country is signalized in the formation of the American Society of Clinical Pathologists which he helped to found and of which he was the national secretary from its inception until his death.

Dr. Burdick was distinguished by an extraordinarily fine character. He was a stickler for scientific accuracy and precision in technique as is evidenced by the appearance of his laboratories which were a model of orderliness and neatness. His passing will be greatly mourned both by the medical profession at large as well as by his numerous friends in the field of clinical pathology, both here and throughout the United States, all of whom entertain for him a deep sense of esteem and affection.

Resolved, The Medical Society of the City and County of Denver express to the bereaved wife and daughter their deep sympathy and condolence;

Resolved, That these resolutions be spread on the minutes of our Society and a copy sent to the family of our late lamented colleague.

PHILIP HILLKOWITZ, Chairman.
GEORGE A. MOLEEN,
HARRY CORPER,
DAVID H. COOVER,
CLAUDE E. COOPER.

Post Graduate Course in Neuropsychiatry July 1 to July 31, 1928

The staff of the Colorado Psychopathic Hospital of the University of Colorado Medical School, aided by heads of other departments, will offer a course in neuropsychiatry during the month of July. The course will be held at the Colorado Psychopathic Hospital, 4200 East Ninth Avenue, Denver, Colorado.

Meeting of the American Medical Association

The annual meeting of the American Medical Association is to be held in Minneapolis. This most important meeting, both from the standpoint of interest and number in attendance, will doubtless be attended by many members from Colorado. Special railroad rates will be in effect.

School of Congress of Ophthalmology and Otolaryngology

In accordance with the custom of previous years there will be offered in Denver a two weeks' course in ophthalmology and otolaryngology, beginning July 16th and ending July 28th. The faculty consists of nationally known men of these specialties, ably assisted by local talent.

THE GOITER CONFERENCE

On the morning of June 18th, the Conference of the American Association for the Study of Goiter will open with diagnostic clinics held at the Colorado General and Denver General hospitals. These clinics will be conducted by guests of outstanding ability. The afternoon of the first day will be devoted to the scientific program.

The morning session of the second day will be allotted to surgeons who will operate at the hospitals. In order that our guests may not be embarrassed by crowding, tickets will be distributed for the surgical clinics and each hospital will enjoy the presence of its full quota of our visitors. The scientific program will be continued in the afternoon.

The third and last day of the conference, June 20, will complete the scientific program at the morning session and in the afternoon we will enjoy the address by Dr. Albert Kocher of Switzerland, son of Theodore Kocher of Berne, Switzerland, one of the great surgeons of all time and the first surgeon to perform thyroidectomy.

The scientific program presents some thirty papers and addresses by prominent men in goiter work from Europe, Canada and the United States. Thus assured of the success of the scientific program, we, as members of the Society, have nothing to worry about except the provision of cases for the diagnostic clinics. To assume that cases will be plentifully supplied by others is to invite disaster. Each of us must do all we can to submit cases and thereby make the conference as pleasant and profitable for our guests as our guests, through the scientific program, will make the conference pleasant and profitable for us.—The Denver Medical Bulletin.

MEDICAL SOCIETIES

THE EL PASO COUNTY MEDICAL SOCIETY

The April meeting of the El Paso County Medical Society was held in the Medical Library, April 11, 1928. Dr. G. B. Webb gave a paper on the Treatment of Pleurisy with Effusion and illustrated his talk with many x-rays. Dr. F. T. Stevens talked on Experiences in the Diagnosis of Brain Tumors.

The Delta County Medical Society held its regular monthly meeting on Thursday evening, March 29. Dinner was served at the Delta House at 6:30 p. m. and the scientific meeting was held at the offices of the Delta Clinic.

Dr. W. A. Day presented a paper on The Trend of Legislation. Although a non-medical paper, it was thoroughly enjoyed by everyone and many personal views were aired.

Dr. L. A. Hick left on March 30 for a six months' trip to Alaska. On March 24 the Delta House gave a 6:30 dinner in honor of Dr. Hick, at which all the Delta physicians were guests.

Dr. C. H. Burgin returned from Denver on April 14, where he has spent several days under the observation of Denver physicians. He has not

been in the best of health lately and wished to consult specialists in regard to his illness. We all hope for his speedy recovery.

Dr. Lee Bast, who left about Jan. 1 for a year's rest following an operation for hyperthyroidism, writes that he is improving nicely and enjoying his forced vacation.

THE OTERO COUNTY MEDICAL SOCIETY

"The Otero County Medical Society and Ladies' Auxiliary entertained the medical staff of the U. S. Veterans' Hospital at Ft. Lyons, and their wives on the evening of March 15th, at Rocky Ford.

A banquet was served at 8 p. m., at the El Capitan Hotel. Music was furnished during the dinner by a stringed orchestra. Two dancing numbers were given by a group of three young ladies, and a reading by Mrs. B. F. Blotz.

All were seated at one large table in the form of a letter T. The tables were artistically decorated with flowers and candles appropriate to the colors of St. Patrick's Day.

At the close of the dinner Dr. H. A. Black of Pueblo gave a very interesting and instructive account of his recent trip through Europe.

Owing to a severe snow storm, the gathering was not as largely attended as had been planned. Nevertheless, twenty-seven physicians and their wives were able to be present, and an enjoyable evening was the verdict of all."

WOMAN'S AUXILIARY

The April meeting of Denver unit was held on Monday, the 16th, at 2:30 p. m.

A delightful program of unusual talent was given.

Mrs. Marian Robertson, instructor in dramatics at the University of Denver, gave two delightful readings. A musical trio, composed of Mrs. Frank B. Stephenson at the piano, accompanied by Helen Barto Swain and Mrs. E. Humphrey Smith on the violin, gave a selection of three numbers.

The May meeting is to be a dinner followed by a bridge party to which the husbands are invited.

At the request of the Denver Health Council the auxiliary is to assume full charge of window exhibitions and decorations for the health program the last week in April.

Mrs. Burns, president, is directing the work and is assisted by various committees composed of thirty members.

Denver paid membership now totals one hundred and fifty-five.

"You say the Smiths are going to build a house soon?"

"Yes. You see, they haven't the plans made, but they have a spot to build it on."

"Well, of course, that's a lot."—Pelican.

Work of the Weiboldt Foundation

Last year the Weiboldt Foundation, established in 1921 to "dispense charity" in Chicago and its vicinity, financed two pieces of research, the results of which are soon to be published—one a study of domestic discord and the other an investigation of the moving-picture experience of 10,000 children. The foundation, which controls a fund of approximately \$5,000,000, last year restricted its contributions mainly to activities of the constructive and preventive type, reducing the number of its beneficiaries from nearly 200 to 43.—Children's Bureau.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 11, 12, 13, 1928.

OFFICERS, 1927-1928

President, William A. Sedwick, Denver.

President-elect, Samuel B. Childs, Denver.

Vice-Presidents, 1st, James M. Lamme, Walsenburg; 2nd, W. B. Hardesty, Berthoud; 3rd, R. H. Finney, Pueblo; 4th, R. B. Porter, Glenwood Springs.

Secretary, F. B. Stephenson, Denver.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association: Senior, T. E. Carmody, Denver, term expires 1928; Alternate, Ralph Johnston, La Junta, term expires 1928; Junior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929.

Councilors:	Term expires
District 1. Ella A. Mead, Greeley.....	1930
District 2. G. P. Lingenfelter, Denver.....	1929
District 3. John R. Espey, Trinidad.....	1928
District 4. W. W. Crook, Glenwood Springs.....	1931
District 5. A. W. Robbins, Durango.....	1932

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, Lawrence L. Hick, Delta.

Denver County—First and third Tuesday of each month; secretary, O. S. Fowler, Denver.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Kon Wyatt, Canon City.

Garfield County—Last Thursday of each month; secretary, O. F. Clagett, Rifle, Colo.

Huerfano County—Third Thursday of each month; secretary, W. L. Wilkinson, La Veta, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Win. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, M. J. Stewart, Loveland.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, J. A. Spring, Montrose.

Morgan County—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Geo. Sorensen, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. R. Blalock, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, H. W. Averill, Evans, Colo.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Work: J. J. Waring, chairman, Denver; J. B. Hartwell, Colorado Springs; William Senger, Pueblo.

Committee on Local Arrangements: E. D. Downing, chairman, Woodmen; J. A. Sevier, Colorado Springs; W. W. Wasson, Denver.

Committee on Credentials: F. B. Stephenson, chairman, Denver; H. W. Snyder, Denver; F. R. Spencer, Boulder.

Committee on Public Policy: Philip Work, chairman, Denver; Edward Jackson, Denver; C. G. Hickey, Denver; D. H. Coover, Denver; W. T. H. Baker, Pueblo; P. J. McHugh, Fort Collins; C. A. Ringle, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver (term expires 1928); C. S. Elder, Denver (term expires 1929); W. H. Crisp, Denver (term expires 1928).

Auditing Committee: G. C. Cary, chairman, Grand Junction; O. E. Coleman, Denver; Florence Fezer, Greeley.

Committee on Necrology: W. A. Palmer, chairman, Castle Rock; H. R. Bull, Grand Junction; C. H. Graves, Canon City.

Committee on Medical Education: J. J. Waring, chairman, Denver; Maurice Rees, Denver; L. H. McKinney, Colorado Springs.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; M. Ethel V. Fraser, Denver; C. W. Streamer, Pueblo.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: C. O. Giese, chairman, Colorado Springs (term expires 1928); Maurice Rees, Denver (term expires 1929) O. S. Fowler, Denver (term expires 1930).

Committee on Military Affairs: John Chase, chairman, Denver; L. M. Van Meter, Denver; E. B. Liddle, Colorado Springs.

Committee on Careers of Members: R. G. Davenport, chairman, Denver; W. K. Reed, Boulder; C. E. Sidwell, Longmont.

Committee to Confer With Boy Scouts: H. S. Canby, chairman, Denver; R. S. Johnston, La Junta; Atwater Douglass, Denver.

Committee on Mental Hygiene: F. G. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; T. R. Love, Denver; C. W. Thompson, Pueblo; T. C. Taylor, Fort Collins; F. W. Lockwood, Fort Morgan.

Committee on Periodic Health Examinations: C. F. Kemper, chairman, Denver; G. H. Curfman, Salida; A. H. Harris, Denver.

Committee on Full-Time Secretary: R. S. Chamberlain, chairman, Denver; B. B. Blotz, Rocky Ford; Jean Gale, Denver; A. J. Nossaman, Pagosa Springs; N. B. Newcomer, Denver.

Committee on Co-operation With the State Pharmacal Association: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.

Curator of Exhibits: E. D. Downing, Woodman.

Committee on Golf Tournament: L. G. Brown, chairman, Colorado Springs; J. R. Arneill, Denver; L. M. Van Meter, Denver.

WYOMING MEDICINE

President, A. P. Kimball, M.D., Casper

First Vice President, J. L. Linn, M.D., Lander

Secretary, Earl Whedon, M.D., Sheridan

President-Elect, F. A. Mills, M.D., Powell

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Treasurer, Evald Olson, M.D., Lovell

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Member of Medical Defense, Earl Whedon, M.D., Sheridan

Alternate, Galen A. Fox, M.D., Cheyenne

George L. Strader, M.D., Cheyenne

EDITOR:

EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

SNAKE BITES VS. TICK BITES

The fear of snakes is so marked that certainly there must be some unpleasant memory dating far back in the dim past of the human races, perhaps to the famous Adam and Eve days.

Certain regions in the country are known for the abundance of snakes and in other parts they are seldom seen.

Snakes and sagebrush seem to grow together because of the human destruction which always follows the march of cultivation.

For years the fear of rattlesnake bite has led western people to provide different antidotes which varied from rotten-gut whiskey to coal oil permanganate and serum. The Crow Indians used the crushed cacti applied to the region of the bite or a slit live bird. Mud seems to be the remedy most used by animals, such as dogs, horses and cattle.

With the development of anti-snake-bite serum, a further step has been taken by the scientific world, and evidently we have a great deal yet to investigate before we are masters of the poisonous reptiles and their bites. Whatever else may be said against the rattlesnake he, however, is a gentleman. He warns before he strikes. But you can't say that for a tick. He sucks before you know it.

Associated in the same general country with the North American rattlesnake, are the wood ticks, especially those classified as of the species *Dermacentor*.

Not all wood ticks are carriers of the Rocky Mountain spotted fever, but members of the *Dermocentor Andersoni* family

are those in the western part of the United States that can and do transmit the infection. These small ticks are found on sagebrush, especially that growing near the holes of prairie-dogs, rabbits, badgers, etc. Sometimes they are found on the rocks or trees. Varying in size from a pin point to that of a bean, they attach themselves to animals and people that pass them. Depending on whether or not they have fed on a warm blooded animal, the bite is dangerous or not.

Investigation reveals that if unfed, even though possessed of the germs causing Rocky Mountain spotted fever, that it is then necessary for the tick to take in human blood and then regurgitate some of this blood into the blood stream of the human before infection can occur.

On the other hand, if the infected tick has fed on blood, its bite is at once infectious. With the fed infected tick the danger is far greater than the rattlesnake bite. Although it takes a few days to develop the disease, whereas with rattler it's only a few minutes to hours.

The spring and early summer are the danger times, and as soon as the days become hot the ticks go into the earth until the next spring. That other parts of the United States will become infected is especially certain since the development of the auto tourist movement. The efforts made by the U. S. Public and Marine Hospital Service in investigating and developing a vaccine reads like a fairy story and is truly a most creditable accomplishment.

The work of Dr. R. R. Spencer and Ch. Wardell Stiles should rank with the great workers and discoverers in the field of yel-

low fever and their heroism and devotion is truly as great and should be so recognized by the medical profession.

No western physician should fail to learn all he can about Rocky Mountain spotted fever, its cause, course, prevention and cure.

E. W.

AN APPRECIATION OF THE UNIVERSITY CLINICS

The third annual clinic was held at the Colorado General Hospital, University of Colorado School of Medicine. In the March issue of the Colorado Medicine there was an invitation to the doctors in nearby states to attend. I registered at noon, March 21st, and attended until noon, March 24th. I feel, as a visitor from Wyoming, that the committee who arranged the program should be thanked and congratulated for the splendid presentation of topics and the prompt conducting of the clinics.

The subjects in the major subdivisions and specialties of medicine and surgery were of special interest to the general practitioner with the reports of some research work to keep us looking forward in the profession.

I was impressed that teaching institutions which put on a clinic week showing careful thought and preparation are giving a service to the general practitioner, making it possible for all to receive the benefits of advancing medical knowledge. If we are to preserve the general practitioner, the family doctor, and give him his proper place in the scheme of medical practice, we must turn his attention to the business of keeping up; he must become the health adviser as well as the curer of the persons in his clientele. If we continue to urge the medical schools to instruct their students to prepare to care for those people living in rural or outlying localities, the medical schools are doing a good work in helping the general practitioner keep prepared to give such sections the best medical attention, a service the same as those living in the cities receive.

I feel that physicians in individual communities appreciate the support of teaching

institutions, who will communicate to them any recent advances that are worthy of being called to their attention, and these institutions by giving attention to the matter of making the general practitioner a better man, are through him rendering a service which becomes direct to the public.

The clinic week gives an opportunity to encourage the practitioners of medicine to cultivate the art of consultation more than most of us do now. The practice of getting together and discussing cases, doing it because we know we need help from each other, and that the final analysis is best for us when it is best for the patient, putting forth the idea that the patient finally must have the best that can be had in medicine which will be the best thing for not only the patient but the profession; in other words, giving at all times the best that can be had through the associations and helpfulness of team work.

Attending a clinic week is like attending a three-ring circus. You cannot see it all, but from the favorable comments of those in attendance at the end of each day, the clinics were a success in every department. May they continue!

DR. J. H. GOODNOUGH,
Rock Springs, Wyo.

Child Welfare Work Pays for Itself

The supervisors of the poor of one New York county were able to reduce their budget by \$3,500, although the appropriation for the children's agency had been materially increased, because the intensive work of the agency resulted in reducing the cost of maintaining dependent children. This was accomplished by securing specialized care in institutions for handicapped and subnormal children, collecting money from relatives, placing children in free homes, and especially through measures which enabled children to remain in their own homes. Other counties had similar experiences, with the result that seven of them have materially increased the appropriation from their budget for child-welfare work.—U. S. Department of Labor Children's Bureau, Washington.

In 1925, plural births in New York state, exclusive of New York City, numbered 2,205 infants, not counting stillbirths. Of this number 2,173 were twins and 32 were triplets (stillbirths excluded). This means in round numbers that a prospective mother has about two chances out of a hundred of having twins.—Health News.

The young doctor sat with a friend at the window. A lady passed. "That is the lady I love," said the doctor.

"Why not marry her?" asked the friend.

"Not likely! She is my best patient."—Exch.

UROLOGICAL FACTORS IN THE REDUCTION OF SURGICAL MORTALITY*

BY J. D. BARRET, A.B., M.D.
BILLINGS, MONTANA

This does not pretend to be an exhaustive review of the subject, but rather a sketchy recalling of facts familiar to all of us, but sometimes forgotten in the hurly-burly of general practice. Oftentimes in our hunt for the sensational, the grandstand stunt, if you please, we lose sight of the commonplace everyday occurrences which, after all, make up the important element in our daily success.

Some twenty-four years past, it was my good fortune to have as a teacher, the late John B. Murphy. I can well remember his scathing denunciations of cystitis as a primary entity, of bladder irrigations in urinary disturbances, which on closer examination would reveal themselves as more serious conditions as tuberculosis, tumors, obstructions, etc. Not once but half a dozen times during the scholastic year would this lesson be driven home. So poignant is the memory that today the mention of cystitis gives me an allgone feeling.

Shortly after came the intern year. What an impression the fearful mortality of the various urologic operations, such as nephrectomies and prostatectomies, made. Over half of the twenty-two prostatectomies died in the hospital, in spite of the adoption of the suprapubic method of Freyer plus the speed of operation which he emphasized. It was not the speed of the operation but the speed with which the patient was hurried to the table, that made for so much ill-success. And this high mortality was true, more or less, of all urologic operations.

A brief comparison of the mortality figures now and then will prove interesting and also instructive as to the value of modern methods in the improvement of our results, both as to mortality and morbidity.

As a sample of the whole improvement, consider these mortality figures in Philadelphia. Deaths from 1916 to 1925 decreased from 1,615.72 to 1,316.13 per hundred thousand, or

18.5 per cent; during the same period, for genito-urinary diseases alone, the decrease was from 178.81 to 129.69, or 26.2 per cent. Certainly striking!

Since the days of antiquity, the treatment of urethral stricture has been dilatation. As late as 1855 the mortality of the various forms of treatment of stricture was as high as 7 per cent to 11 per cent. In 1908 the figures are 0.5 per cent for gradual dilatation, 1.1 per cent for internal urethrotomy, and 1.5 per cent to 4.9 per cent for resection or combined internal and external urethrotomy.

Consider testicular tumors. In the past simple orchidectomy yielded 19 per cent cures. Today Hinman with his radical operation reports 35 per cent cures.

Up to 1855 operations for varicocele were attended with heavy mortality. Nowadays it is a simple office procedure.

A few decades ago in a reported series of 114 cases of prostatic abscess, the mortality was 29.8 per cent. How difficult to reconcile this with the low death rate of less than 5 per cent now obtaining!

Cole in 1884 in America performed the first prostatectomy (perineally). Later Belfield, Goodfellow, McGill, Fuller and others established the operation on a firm clinical basis. As late as 1887, Thompson stated that successful prostatectomy was unknown. Consider Ashurst in 1886, "There is nothing to be done surgically, nor is excision a procedure to be advocated." So even as late as then the advice of the ancient physician to the prostatic held good! To build a funeral pyre high and thick, to mount same, and then die in the consuming flame. In the light of our present knowledge, is it any wonder that up to twenty years ago the death rate ranged from 15 per cent to 50 per cent? Today Young reports 3.4 per cent; Freyer 5.5 per cent; and Liebig 7.4 per cent in the collected statistics of 7,565 operations, suprapubic and perineal. Forty years ago Ashurst spoke skeptically of the treatment of median bars, although section had been practiced and rec-

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commended by Guthrie, Mercier, Teevan and Gouley. Today Young reports a mortality of 2 per cent in 355 punch operations and Caulk reports no deaths at all from his cautery punch and says that "30 per cent or more of obstructions can be relieved by this method, thereby reducing the number of prostatectomies, and lowering the general mortality rate of prostatic surgery."

In 1906 Watson and Cunningham report in extra- and intra-peritoneal rupture of the bladder, a mortality of 88 per cent in expectant treatment and 46.6 per cent from operative treatment. Today the death rate should not exceed one-tenth of these figures.

As for diverticulum of the bladder, during the last thirty years the mortality has decreased from 80 per cent to 8 per cent.

Again consider vesical calculus, a subject, medically speaking, of vast and amusing historical interest! In 1908 in 33,869 cases in which operation was done suprapubically, perineally, or by litholapaxy, the death rates were 13.2 per cent, 10 per cent, and 2.4 per cent respectively. Nowadays the mortality in the larger clinics has been reduced to less than 5 per cent.

What a boon Beer gave to suffering humanity when in 1910, he introduced cystoscopic fulguration of bladder tumors, especially benign, reducing the mortality to almost nil. While our success with the malignant type has not been so pronounced, yet the various modern procedures constitute a distinct advance.

As for operations on the kidneys, as late as 1912, Guiteras reported a mortality of 10 per cent for nephrotomy and 30 per cent for nephrectomy, and stated that in tumor it might reach 50 per cent. Today a conservative estimate of the death rate from nephrectomy is from 5 to 10 per cent.

Turning from strictly urologic subjects, how about the influence of urology on the reduction of the mortality, and more particularly the morbidity, of other operative procedures? How often do we see or hear of patients who have been treated for various diseases as appendicitis, cholecystitis, adhesions, various diseases of the pelvic organs, without success and who later, after careful

urologic study, have shown some abnormality of the urinary tract. Many such are to be found and too many are occurring every day. And again how often do we see a patient who fails after an operation from weakened or damaged renal function through the choice of the wrong anaesthetic, or the man past forty operated for hernia or haemorrhoids who does not do well because an embryo chronic nephritis or latent prostatism has been overlooked!

Certainly in the knowledge we possess of single and twenty-four hour specimens of urine, specific gravity fixation, catheterized specimens, renal functional tests, blood chemistry, there can be no excuses for these gross errors.

Nor shall we excuse the urologist who is so ignorant of cord bladders that he overlooks tabes, concealed spina bifida, and other neurologic disorders. It was a wise man who said that a urologist should first be a neurologist.

In the light of the figures given as to the reduction of urologic mortality, and also the few suggestions as to the avoidance of gross errors in the diagnosis of abdominal conditions, where shall we seek the explanation if not in the specialty of urology? In the names of the pioneers and founders of the specialty, their names too numerous to mention, recall inventions, discoveries, researches or valuable additions to surgical technic that have promoted the successful treatment of diseases of the urogenital tract, rendered surgery safe and ever safer for humanity, reduced mortality and thereby lengthened life. Progress in urology as Schmidt rightfully observes, is to be measured by outstanding discoveries rather than by dates and periods.

Ranking first in importance we have the cystoscope and the urethroscope and their results,—the visualization and accurate diagnosis, even by photography and biopsy if necessary, and treatment of lesions of the urethra and bladder, catheterization, diagnosis and differential diagnosis and treatment of kidney diseases; pyelography and ureterography; dilatation of ureter for stricture and calculi; intravesical operations as fulguration of tumors, excision of median bars,

ureterotomy, and implantation of radium;—results which have been far reaching and almost incredible, and have exerted a truly incalculable effect on mortality reduction. Other milestones in the progress of urology that deserve mention, are the discovery of the germ cause of disease, surgical asepsis and antisepsis, roentgenology as applied to urology, including cysto-, uretero-, pyel-, and pneumoradiography; researches and discoveries in pathology and bacteriology; functional kidney diagnosis, blood chemistry; immunology; serology; diathermy and narcosis as applied to local infiltration and various types of spinal anaesthesia.

Last, but not least, improvements in the preoperative, operative, and post-operative care of patients have been far reaching in their effect on the reduction of mortality.

Enough has been stated to show that thousands of lives have been prolonged and spared by the progress of urologic surgery. In the sparing and prolonging of these lives lies the justification of urology as a specialty and in this recognition the public and the general practitioner have come to realize the importance of certain symptoms and signs, and also realize the value of prompt investigations and expert procedures.

TREATMENT OF GASTRIC ULCER*

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In the treatment of gastric ulcer, the removal of focal infections and intestinal toxemia is emphasized by all authorities.

Some favor the predominance of carbohydrate foods, while others insist on food rich in proteins, while still others favor butter fats. Einhorn brings into play the duodenal tube, which is modified by some by using the Murphy drip method of duodenal feeding.

Practically all forms of treatment comprise three stages: First, absolute gastric rest; second, reduced and careful nutrition, with or without medical neutralization after food; third, careful dieting where the food value of the diet will be such as to insure complete nutrition.

The starvation period varies with different authorities from five days to several weeks. There is also another deviation in regard to alkalinization—some favor it and others disclaim any benefit. There are also extremes of medication from multiplicity of drugs to the practical nihilism of Smithies.

According to Rehfuß¹ the vegetables and cereals not only produced the smallest amount of acid, but have the additional advantage of leaving the stomach more readily than other foods. He also states that the only methods of treatment which have been used which have a true scientific foundation for their

use are the Yarotsky method, with long intervals of feedings of butter and the whites of eggs; and the concentrated dextrose method of Loeper. Both of these methods result in very little secretion; both of them result in a temporary inhibition of gastric secretion. He states that the Sippey treatment is not well borne by the majority of people.

The Lenhartz treatment requires absolute rest in bed for four weeks. The beginning of the diet consists of egg albumen and milk. Bismuth subnitrate in doses of 30 grains two or three times a day are given.

von Leube requires rest in bed for fourteen days, Carlsbad water, hot poultices changed every fifteen minutes and kept hot, and light diet of high nutritive value and ready digestibility.

Sippey puts them to bed for three weeks, and his beginning diet consists of milk and cream at hourly intervals; alkalinizing with hourly doses of heavy calcined magnesia and sodium bicarbonate, alternating with calcium carbonate and sodium bicarbonate.

Warren Coleman puts them to bed and starves them for five days, supporting with glucose enemas. After the fourth to the sixth day feeding is begun with egg albumen and olive oil or butter fat, glucose, salt and water. This dietary system is quite similar to that of Yarotsky.

Smithies' method is as follows: Rest in

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bed, physiological rest to the stomach and local applications to the abdomen. He endeavors to keep the stomach empty of food but supports nutrition by rectal feeding. Mouth feeding is begun on the third to sixth day. Carbohydrates and small quantities of liquid foods which most quickly leave the stomach and give rise to the minimum amount of functional activity is given. He emphasizes the importance of limiting the over-production of HCl and over-accumulation of free gastric acid by keeping the stomach food free. He considers it an absurd and contradictory procedure to exhibit alkalies and thus produce an intragastric state which calls for the removal of the foreign mass to insure the patient's comfort.

Bassler gives no food for 24 to 48 hours. During this time the patient is given calomel $\frac{1}{4}$ grain doses every fifteen minutes for eight doses, and Carlsbad salts twelve hours after finishing, and at twelve-hour intervals during the fasting period. Water, not iced, is allowed. Alkalies are administered from the first to neutralize the gastric secretion. During the fasting period 10 grains sodium bicarbonate and bismuth subnitrate are given every three hours, six doses only in 24 hours, there being an interval of six hours during the night. The first three days are followed after Sippey; aspiration of the stomach contents and examination of the urine is done. If stomach contents is alkaline, although the urine is acid, no alkalies are given during the night during the next fifteen days. If acid is found in the stomach contents and urine, alkalies are given at three hour intervals during the night for the remainder of the fifteen days, in quantities to keep the urine alkaline, with eggs, cream and milk until the end of the fifteen days in bed.

Bassler² states that one patient will do best on early and rather full feedings as recommended by Lenhartz, and another case becomes distinctly worse until complete rest of gastric activity has been carried out for several days as practiced by von Leube. He suggests the use of von Leube's method for the first few days and Lenhartz's after that. He highly praises Ewald's modification of the von Leube diet in which Ewald has added

milk, causing a fine floccular coagulation by the addition of pepsin. The main feature of Ewald's method is stomach rest.

Bassler states that time enough has elapsed for the enthusiasm for the Einhorn duodenal feeding to have waned, for it is evident that the number of cures by this method is not even as large a percentage as obtained by the rest in bed and diets of Lenhartz and von Leube. He thinks it is strange that so little use should have been made of atropine and belladonna. He gives it in $\frac{1}{3}$ of the dose which will produce constitutional physiological effect during the time in bed, and afterward just short of producing physiological effects. He is enthusiastic over its extreme usefulness. He uses bismuth subgallate, subcarbonate and subnitrate combined with magnesia oxide, giving Carlsbad salts each morning.

Austin³ alternates between von Leube and Lenhartz modified. Where the hypersecretion is very marked he gives sodium citrate and magnesium oxide; otherwise he is not very keen on medication.

Kantor⁴ thinks it is not a competition between methods, but a selection of the best available method for the particular case that is the problem that confronts us. He favors bed rest and preliminary starvation, followed by a choice between the carbohydrate diet of von Leube and the concentrated protein diet of Lenhartz. He states medicines do not play much of a role in ulcer therapy, also that the therapy of ulcer is largely a purely empirical procedure.

Kemp⁵ puts them to bed for two to four weeks with a diet of gelatin, milk, cream, gruels, etc. Medication: iron and arsenic; bismuth. He states that Hort claims excellent results in the treatment of gastric ulcer, without hemorrhage, with the subsidence of pain and vomiting, by the oral administration of normal horse serum, 10 to 15 cc daily, increasing it daily until 30 cc are taken each day.

Aaron⁶ is satisfied with quotation of von Leube, Lenhartz, Sippey and Einhorn, adding nothing much of his own.

Conheim-Fulton⁷: von Leube diet, pro-

longed fast, saline waters, bismuth subcarbonate and silver nitrate.

Primbrau⁸ claims to have had good results from the intravenous injection of a non-specific protein (novoprotein) in doses of 0.2 to 1 cc at 3 or 4 day intervals for about a month. He reports from 50 to 70 per cent good results.

More recently E. Rosenberg⁹ of Cleveland presents the report of Leo Jarno of Budapest, based on experimental and clinical evidence, in which he points to a constant decrease of blood-cholesterin in his ulcer cases, due to a decreased duodenal regurgitation of bile into the stomach, as a possible etiologic factor in the formation of gastric and duodenal ulcer. He denies the existence of "antipepsin," and claims that such antipepsin action is exerted by the amino-acids of the bile regurgitation from the duodenum into the stomach. On the basis of these findings he resumed the bile therapy, as originally suggested by Glaesner and Palfrey, but used in addition large quantities of cholesterin, since he found low blood-cholesterin values in every ulcer case under his observation. In his series of twenty well recorded cases treated with this combination, he obtained such remarkable results, improvement of subjective symptoms and reduction of acid values that a revision of the prevailing theories seemed to him warranted. Coincident with the improvement of symptoms, after but a short period of treatment, the blood-cholesterin values showed a proportionate increase. He also noticed that the blood-cholesterin level and the severity of the ulcer symptoms displayed an inverse relation: i. e., the more severe the case, the lower the blood-cholesterin level.

A modified Sippey diet was ordered, and the original combination of bile and cholesterin administered orally or intramuscularly, or sometimes both orally and intramuscularly in the form of cholesterin and olive oil. The improvement noticed after the third day was remarkable in each case.

The average patient suffering from this condition is not economically situated so that he can go to bed for varying periods. The vast majority are bread earners and family maintainers. If he can be made comfortable,

and at the same time remain on his feet and on the job, and have reasonable assurance of recovery from his malady, he has a satisfactory advantage over the one who has not been so favored.

Frick¹⁰ of Chicago in 1924 presented a form of treatment without alkalis which I have followed with uniformly good results, which is as follows:

Fasting: How long should a patient fast? Experience has taught that it is sufficient for him to abstain from food until he has been free from pain and distress for 24 hours, and in case of hypersecretion, until the latter has ceased. During the fast he is given water frequently. While water increases gastric secretion, it, on the other hand, inhibits temporarily the hunger contractions and helps bring the stomach to rest.

Dietetic treatment:

1. Dispense with meat extracts, acids and alcohol.

2. Reduce the amount of salt to a minimum.

3. Give freely of fats, particularly in the early part of the treatment because of its inhibitory influence on the secretions. This should consist of fresh cream, sweet butter and in suitable cases, olive oil.

4. See that the patient gets proteins, fats, carbohydrates and vitamins and necessary minerals in proper proportions. Weight should be the criterion. If he gains weight and strength it is evident that he gets a sufficient number of calories.

5. Gradually increase those articles of food which tend to promote bowel movement, because it is known that constipation increases gastric acidity. Therefore, at the proper time, plenty of coarse cereals, coarse bread, vegetables and sweet fruits should be given.

Basing the dietetic treatment on the foregoing principles, the feeding is begun after the patient has been free from pain and distress for 24 hours, starting with cream alone; after a few days add water gruels made of oat meal or other cereals, and thereafter gradually also, warm milk, rusks or zweibak, sweet butter, eggs, cream soups, cooked vege-

tables, coarse cereals coarse bread, cooked and not too sweet fruit and boiled fish.

About six or eight weeks after beginning he should be allowed to take a small portion of meat daily, chicken or lamb to begin with, gradually also beef, veal, wild fowl and venison. At first the meat should be served in the form of stew; later on the lean part of roast or broiled meat is allowed, but fried meat should be avoided. He may at the same time begin to take a small cup of weak coffee at breakfast, and some raw fruit provided it is sweet.

After three months, as a rule, the patient is discharged and given the following instructions: For one-half to one year or even longer, he should avoid all greasy, acid and very salty food. Greasy food is understood to mean all fried food and all fats except fresh cream and sweet butter and possibly olive oil; by acid food is meant vinegar and acid fruit. He should take only moderate quantities of meat, meat soups, white bread, pastry, sweets and coffee. He should be encouraged to eat a great deal of coarse bread, vegetables and sweet fruits.

Medicinal Treatment

He uses bismuth subnitrate and opiates. As a rule bismuth alone is sufficient if the chemically pure subnitrate is used in large enough doses. One heaping teaspoonful stirred up in a small quantity of water should be given at least four times daily to begin with.

It may be difficult scientifically to prove the effectiveness of bismuth subnitrate, but from a clinical point of view there is abundant evidence of its being an anodyne, antiseptic and antiphlogistic. In the large majority of cases if bismuth subnitrate is given on a truly empty stomach, the pain and distress disappears after the very first or possibly the second dose, never to return, provided the treatment is faithfully carried out. Where the bismuth fails to relieve the pain, it is probably due to intense inflammation or spasm of the pylorus and opiates are then necessary. If after taking two doses of bismuth subnitrate two hours apart the patient is not perfectly comfortable, one dose of $1/8$ or $1/6$ gr. of morphine or 8 to 10 drops of tr. of opium

should be given with one teaspoonful of water. Usually the one dose is sufficient to permanently relieve the pain. If the pain is relieved, the subnitrate of bismuth is given regularly throughout the treatment for three months or longer. The dose may be reduced to a rounded teaspoonful three times a day as soon as the stools become black. By the time the patient takes only three meals a day, three still smaller doses a day may be sufficient as long as they are large enough to keep the stools black and fairly odorless. The bismuth should always be given before meals and with only a small amount of water. There is no danger of nitrate intoxication in giving large doses provided the bowels are thoroughly evacuated at least every other day.

In addition to bismuth only one class of drugs, as a rule, is needed, namely cathartics. One to three teaspoonfuls of compound powder of glycyrrhiza at bed time. It does not interfere with the benzidine test for occult blood, which should be made at least twice a week. Later on salts are more appropriate, and for this purpose magnesia magma, or tribasic magnesium phosphate as recently advocated by Kantor may be used. In numerous instances no cathartic need be given. Alkalies need not be given. It is of common knowledge that an ulcer often heals spontaneously while it is still being bathed by gastric juice. Many ulcer patients have found that by taking a vacation and being careful in their diet, their symptoms disappear and do not return for years.

Furthermore the large majority of experimentally produced gastric ulcers have a tendency to heal very rapidly and the presence of active gastric juice does not prevent it. Finally it is well known that ulcers occur in stomachs that do not secrete any free HCl and nevertheless do not heal, a fact that hardly accords with the theory of the acid gastric juice being the single factor that prevents its healing.

The patient who has used sodium bicarbonate and received temporary relief is not cured of his ulcer, although he has lived on milk, eggs and cereals, and yet upon taking a few doses of bismuth subnitrate on an empty stomach, and refrained from food for a few

hours, is immediately, not only temporarily but definitely, and under certain conditions, permanently relieved. This experience alone seems to be sufficient clinical proof that bismuth is the favorite drug and that alkalies are not needed.

In cases of persistent pyrosis he uses small doses of sodium bicarbonate in conjunction with bismuth, and at other times he gets better results from sodium bromide.

He states that while atropine has the reputation of relieving spasm, it may be definitely stated that atropine does not produce such relaxation when most needed, as in painful pyloric spasm, or spasms of the gall bladder and gall ducts or of the neck of the bladder or of the anus. Whenever spasm is present morphine is the supreme remedy. As to the depressive action of atropine on gastric secretion, it might be of value if it were not for the fact that, in order to obtain marked results, so large doses have to be given that the undesirable and disagreeable effects of atropine are also produced, such as delay of gastric evacuation and symptoms of intoxication.

Under the relatively simple treatment as it has been outlined, the average patient will recover without discontinuing his work and for people of moderate means it is a great advantage to be able to regain their health under an ambulatory treatment. However it is advisable, even if not strictly necessary for the patient to remain at home and in bed during the first day or two while he is fasting.

He mentions four conditions in which it is necessary to remain in bed for any length of time:

One, anemia from bleeding; two, acute ulcer; three, continuous hypersecretion and dilatation; four, gastropsis.

In spite of all carefulness peptic ulcers do recur. If on discharge the patient is warned that a recurrence is possible, and if he is assured that the ulcer will readily heal again provided he, on the first appearance of the old symptoms, immediately begins to take bismuth subnitrate, evacuates the bowels, skips a few meals, lives on milk and toast for a few days and thereafter gradually increases his diet, the success in treatment of a second and third ulcer will be as pronounced as in that of the first.

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CONGENITAL HYPERTROPHIC PYLORIC STENOSIS*

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The writer of this paper may be criticised for presenting a subject, which on first thought might be considered of very little interest to the general practitioner, because of the rarity of these cases. It has occurred to me however that as one scans the present day medical literature and notes the large number of cases reported in recent years, that it is very possible that many cases of congenital hypertrophic pyloric stenosis are

being overlooked, even at the present time, and we will doubtless agree that many of these cases have not been diagnosed in the past.

The early symptoms are so similar to the digestive disturbances of infancy that it is to be expected many cases diagnosed indigestion, inanition and marasmus are really congenital stenosis of the pylorus.

According to Foote the first case was reported in 1771 by George Armstrong, a London physician. The first operation for this condition was performed in 1893, a jejunos-

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tomy, resulting in the death of the child. Prior to 1904, only five cases were operated in the United States, gastro-enterostomies being performed and ending fatally.

From 1904 to 1914, a large number of cases were operated by Scudder of Boston, Downes of New York and Richter of Chicago, gastro-enterostomies being the operation of choice with a mortality of well over 50 per cent resulting.

In 1908 Fredet, a French surgeon, did the longitudinal incision through the tumor, down to the mucous membrane but tried to suture the incision. Weber of Germany recommended the same procedure. In 1912, Rammstedt discovered accidentally that it was better to leave the incision unsutured. In a case where he had done the longitudinal incision, he was unable to suture and the child made an uneventful recovery. Following the successful outcome of this case, Rammstedt advised leaving the incision through the tumor open and the mortality rate was greatly lowered in the cases that came to surgical treatment over those in which the gastro-enterostomy was performed.

The medical treatment up to this time, 1912, was symptomatic, gastric lavage, concentrated foods in small quantities and frequent intervals, rectal feeding, forced fluids, anti-spasmodics and stimulants as indicated with a resulting mortality lower than in surgical treatment.

Anatomy of the pylorus: The pylorus in an infant is a cylindrical canal about one inch long, easily compressible between the thumb and fingers. The muscular coats are made up of the longitudinal fibers and the circular fibers, the former having an action that is antagonistic to the latter and tend to open the lumen of the pylorus while the circular fibers form the sphincter and by their contraction close the lumen. The circular fibers extend the entire length of the pylorus, according to Cunningham and in these cases of congenital stenosis the lumen of the pylorus is closed partially or totally for its entire length.

Pathological anatomy: In these cases on operation or at post-mortem, a sharply defined olive shaped tumor about one-half to

three-fourths inch in length, is found. This tumor is formed entirely from the hypertrophied circular muscular fibers and does not show any signs of inflammation. The lumen of the pylorus is partially closed and is likened by Jarvis to the action of an hypertrophied prostate compressing the urethra. He says that the fact that the x-ray shows some barium passing into the duodenum, or that signs of some food in the stools, should not be taken as of sufficient evidence to rule out the diagnosis of congenital pyloric stenosis; the value of the roentgen examination being in determining the rate of emptying the stomach. The explanation of the final closure of the lumen of the canal as given by Downes is that the hypertrophied muscle reduces the lumen and in order to empty itself, the stomach contractions are abnormally strong. This causes the mucous membrane to become thickened and oedematous in time and assume a spiral arrangement along the narrowed canal, thus acting as a valvular condition, practically closing the canal.

Whether there is an absorption of the hypertrophy and a cure of the stenosis in cases that have apparently recovered under medical treatment is still a matter of dispute. Ibrahim reports post-mortem findings in undoubted cases of hypertrophic pyloric stenosis which have died from other causes, that show the hypertrophy of the pylorus persisting and accompanied by a compensatory hypertrophy of the stomach walls. Eagleson, Strachauer and others claim that the tumor persists for a long time in cases on which gastro-enterostomies have been performed as shown by the x-ray findings the barium passing through the anastomatic opening and not through the pylorus.

Post-mortem findings in cases that have had the Rammstedt operation and died later from other causes show that the tumor mass has disappeared, due to the atrophy of the circular fibers, after they had been severed.

That the condition is congenital is shown by the fact that it has been found in premature infants that have come to autopsy and that it may manifest itself in the first days after birth.

Symptoms may develop any time after

birth, but usually not until after the fourth day and some authors claim that the later the symptoms develop the better the prognosis. Males develop this condition much more frequently than females, often the first-born, usually breast-fed and most often in apparently healthy babies of normal birth.

The child suddenly begins to vomit without apparent cause, this may be occasionally, then with increased frequency, usually right after nursing or before through nursing. Change of food does not improve the condition. The vomiting is very forceful and projectile in type. The child fails in weight rapidly, urine scanty and high colored, stools small or nearly absent, dark colored resembling meconium, the abdomen above the umbilicus is markedly distended while the lower abdomen may be quite flat, peristaltic waves can be noted by flicking the abdominal muscles and in some cases a small nodule or tumor can be made out in the pyloric region.

Treatment: There is still considerable diversity of opinion as to the best method of procedure, some pediatric surgeons claiming all cases of congenital hypertrophic pyloric stenosis should be operated as soon as possible and that the high mortality rate in the past has been due to the fact that the little chaps are in such a weakened and emaciated condition, when finally turned over to the surgeon.

On the other hand, the internist claims that there are various degrees of the stenosis and that many of the milder cases in which there is sufficient food passing through to maintain a fairly normal weight balance or at least not too great a loss, will recover under medical treatment.

I think however that the internist and surgeon are finally coming to the point where they agree that at first the treatment should be medical. If the child continues to lose weight under medical supervision and there are no signs of the condition clearing up, then the case should be turned over to the surgeon early, before the child becomes so completely dehydrated and emaciated that it is a poor surgical risk.

Undoubtedly the high operative mortality of the past has been largely due to the weak-

ened condition of the child when turned over to the surgeon, in other words many of these cases might have been saved if operated earlier.

On the other hand, undoubtedly many of the cases operated early by the surgeon might have been cases that would have responded favorably to medical treatment.

It seems to me that the thing to do in these cases is for the surgeon and the internist to work together, since at times the condition will require the best of judgment as to the wisest course to pursue.

The medical treatment consists in giving small quantities of food at frequent intervals, rectal feedings, olive oil rubs instead of bathing, gastric lavage, normal salt solution by rectum or sub-cutaneously, glucose by rectum, atropine or other anti-spasmodics given in sufficient dosage to get physiological effects and stimulants when indicated.

The surgical treatment generally used at the present time and the one with the lowest mortality is the Rammstedt operation or some slight modification of the Rammstedt. This briefly consists in a very short right rectus incision, a longitudinal incision in the pyloric tumor through the circular muscle fibers down to the mucosa, the incision in the pylorus being left unsutured. The most successful operators stress the need of the operation being performed rapidly, ten to twelve minutes; very warm operating room, body heat retained by wrapping child in cotton with hot water bottles around it; short anesthesia where general anesthetic is used and everything in readiness to operate before anesthetic is started; fluids to be given before and during operation if necessary.

Dyas suggests making the pyloric incision in the upper posterior surface of the pylorus to avoid the rich blood supply of the anterior surface which is encountered in the original Rammstedt operation. This is accomplished by rotating the pylorus forward about ninety degrees. Feeding is started about four hours after the operation.

Mortality:

Strauss of Chicago, 101 cases, 3 deaths, 3 per cent.

Downes of New York, 175 cases, 30 deaths, 17 per cent.

Jarvis of Hartford, Conn., 38 cases, 3 deaths, 8 per cent.

Strachauer of Minn., 48 cases, 1 death, 2 per cent.

Sauer's review of 761 cases, 91 deaths, 12 per cent.

Rodda, 17 cases, 5.8 per cent and 12 cases medically, 36 per cent.

Post-mortem findings as reported by Martha Wollstein in 25 cases, 2 dying before operation and the others dying from twenty-four hours to two years after, shows the lesion is a hyperplasia of the unstriated muscle fibers of the circular coat and no increase in connective tissue. The wound in the pylorus heals in nine days, the pylorus becomes relaxed in two weeks, stomach returns to normal size in one month and the gap between the cut ends of the muscle has about disappeared in six weeks. In two years the pylorus and stomach are practically normal. In contrast to gastro-enterostomy which leaves the pylorus unchanged, the Rammstedt operation cures the condition.

In 1912, or sixteen years ago, I had my first case of congenital hypertrophic pyloric stenosis, or at least the first one I had diagnosed as such.

Case 1: Male child, first male child in family, normal birth, weight at birth $8\frac{1}{2}$ lbs., breast fed, developed normally up to third week, then weighed $9\frac{3}{4}$ lbs. Suddenly began to vomit immediately after each feeding, vomiting of the projectile type; no indication of pain or loss of appetite. The diagnosis of acute indigestion was made, the baby taken from the breast for twenty-four hours and barley water substituted for breast milk but the vomiting continued. The breast milk was found of good quality and normal and the child was put back on the breast with a continuance of the vomiting and loss of weight. The stools became scanty and dark colored. Various foods were tried without success and there was a very rapid loss of weight. The diagnosis of pyloric stenosis was not made until ten days after the onset of the symptoms. At this time the weight was $6\frac{1}{2}$ lbs., the abdomen was distended above the umbilicus and flat below, urine scanty and high colored, stools very scanty and almost black resembling meconium. At this time a distinct nodule about the size of the end of a thumb was palpable in the pyloric region and peristaltic waves could be observed upon slight irritation of the abdomen. These waves would pass across the abdomen until they came to the pyloric region, where they appeared to knot up as they encountered the obstruction.

At this time very little information was avail-

able on the subject, the text-books contained very little and because of the high surgical mortality, the Rammstedt operation not having been developed, this case was treated medically.

The diet consisted of small amounts of concentrated food (2 ozs.), given every two hours, rectal feedings every six hours, olive oil rubs three times daily.

Atropine was used as an antispasmodic but with questionable results; stimulation was given by rectum in either whiskey or brandy. There was gradual loss in weight until at five months the weight was $5\frac{3}{4}$ lbs. Instead of gastric lavage about five ounces of normal saline was given after the food had been vomited thus serving to wash out the stomach and free it of the large amount of mucous which accumulated. It was found that the child could retain usually two of the small feedings before the stomach was emptied by the explosive or projectile vomiting.

At the age of five months, there was a remission of the symptoms; some food passed the pylorus, there was a gain in weight up to $6\frac{1}{2}$ lbs., stools were more in volume and became more normal in color. Suddenly there was a recurrence of symptoms, weight dropped back to $5\frac{1}{2}$ lbs., stools became black and tarry and the child was back to its lowest condition again. In a few days all symptoms subsided and the child made a rapid and uneventful recovery, gaining as much as 6 ozs. a day for a time, at one year of age weighed 25 lbs., and has never had any gastric symptoms since.

Case 2: Female child, first-born, breast-fed, weight at birth $7\frac{1}{2}$ lbs.; normal birth, began vomiting of projectile type at two weeks of age, was treated with various forms of diet before I saw the case. At this time the weight was $4\frac{1}{2}$ lbs. and the clinical picture very similar to that in case 1, except that more food was passing the pylorus as evidenced by the stools.

The same line of treatment was followed as in the first case, better results apparently being obtained with the use of atropine and the symptoms subsided at $2\frac{1}{2}$ months, no recurrence, rapid gain in weight and uneventful recovery. In this case no tumor could be palpated at the pylorus.

Case 3: Male child, second in family, normal birth, breast-fed, weight at birth $7\frac{1}{2}$ lbs., symptoms developed during fourth week, weight at this time $10\frac{1}{4}$ lbs., rapid loss of weight and when I first saw the case the child weighed 6 lbs. and was two months old. The small tumor could be palpated in the pyloric region, abdomen distended above umbilicus and flat below, stools scanty and black, vomiting very forceful and of the projectile type. This child was treated as in the preceding cases and the symptoms subsided at the fourth month when the weight was 6 lbs., there was a rapid gain in weight and the child has never had any gastric trouble since. I saw this case in 1914 and the father was in my office last week and told me this chap is 14 years old and weighs 140 lbs.

Case 4: Male child, third in family, normal birth, breast fed, weight at birth $7\frac{1}{2}$ lbs., developed the symptoms of stenosis on the fourth day after birth, vomited almost continuously and lost weight rapidly. When I first saw this case three weeks after the onset of the symptoms I do not think the child weighed over 4 lbs. This case was 15 miles in the country and I only saw it once. A tumor was palpable in the

pyloric region. This child died the third day after my visit.

The end results in these cases treated medically should be interesting. Crohn of New York reports a case in adult life of undoubtedly congenital hypertrophic pyloric stenosis, which came to operation at the age of 45 years. The operative findings were a greatly thickened and stenosed pylorus with a compensatory hypertrophy of the gastric musculature and considerable gastric dilatation.

I have gone into detail in my report of the first case because this case was in my own family and I have been able to follow it closely for the past 16 years. This boy is very well developed and has never had any gastric disturbance since infancy. The x-ray findings at the present time are interesting. As interpreted by Dr. Bridenbaugh they show a stomach normal in size and position, a moderate stenosis of the pylorus, moderate pylorospasm and a small amount of residue after six hours.

Conclusions

That these cases of congenital hypertrophic stenosis of the pylorus are more frequent than is generally supposed.

That males are more subject to this condition than females.

That the internist and surgeon should co-operate in these cases and where an operation is deemed advisable it should not be delayed so long that it will increase the surgical risk.

That the Rammstedt or some slight modification of the Rammstedt is the operation of choice at the present time.

That in cases which are treated medically and recover the stenosis of the pylorus probably persists with a compensatory hypertrophy of the gastric musculature and some dilatation; with the possibility that these cases may have to come to operation for gastric disturbances later or in adult life.

Request for Speed

Robert, aged six, ardently desired a sister, and was told that if he prayed for one a baby might come. So he added to his nightly prayers petition for a little sister.

Results not coming as soon as he wished, one night he added:

"If you have a baby almost finished, don't wait to put in her tonsils or appendix, as they usually have to be cut out, anyhow."—C. H.

NEWS ITEMS

Hot Springs Medical County Society

The doctors of Hot Springs county, of which Thermopolis is the county seat, have organized and elected the following officers: Drs. A. G. Hamilton, president; C. Dana Carter, vice president; V. A. Mokler, secretary; J. D. Wilson, treasurer.

In addition to the above officers, the following members of the profession joined the Society: Drs. R. W. Hale, P. F. Metz, Fred Gassman, E. L. Jewell.

This county was formerly included in the Northwestern Medical Society, but on account of the location at the extreme south end of the Big Horn basin, attendance at the meetings of the Northwestern Medical Society has been difficult, and this move for a separate society will probably prove advantageous to all.

Sheridan County Medical Society

The Sheridan County Medical Society held a most enjoyable meeting Tuesday, March 27th. in the offices of Drs. Keating, Dolan and Carr. Arrangements were made at this meeting for a social gathering of the doctors, dentists and druggists and their wives, to be held at the Country Club early in April. Special committee was appointed to take charge of this. It was voted to make the April monthly meeting a clinic at the Sheridan County Memorial Hospital, with Dr. E. R. Crane in charge of the program.

Dr. T. E. Marshall, county health officer; Dr. Earl Whedon and Dr. F. A. Dolan have been giving injections of tick vaccine to prevent Rocky Mountain spotted fever. The vaccine, coming from the U. S. Public Health Service Laboratory at Hamilton, Mont., where Dr. R. R. Spencer and R. R. Parker are producing this vaccine. Dr. Dolan, on April 5, gave one hundred and six people this vaccine at Arvada, Wyo., located on the Powder river. He expects to return and repeat the vaccination on the 12th and 19th. Many of these people came for miles in order to get this vaccine, to protect themselves against the dreaded disease, Rocky Mountain spotted fever, which results from the bite of these wood ticks. Dr. McCoy, head of the Hygienic Laboratory of the U. S. Public Health Service at Washington, D. C., recently made a trip, over most of Montana and Wyoming, investigating the tick situation in these states. In fourteen days he slept in fourteen different beds, and is obtaining a great deal of first-hand information in the states covered. Dr. McCoy's visit to Sheridan was greatly enjoyed by the doctors who had the pleasure of meeting him.

Senator John B. Kendrick is very much interested in the subject of tick fever and its prevention, and is doing everything that he can at Washington to try to provide the people of this state with the protection which they so need in certain areas. It is the hope of Senator Kendrick that some arrangement can be made, whereby a laboratory for the production of this serum may be established in Wyoming.

If it is possible, the state of Wyoming and the Public Health Service should co-operate in the manufacture of this vaccine, as no private companies are engaged in the manufacture of this vaccine, indeed only at Hamilton, Mont., is there

any vaccine of this nature being made in the world.

Following the staff meeting on Tuesday, April 10th, the Sheridan County Medical Society held an interesting meeting and arranged for a special clinical night Monday, April 16th, at which time Dr. R. E. Crane will present some very interesting nervous disease cases, and to which meeting the staff of Fort McKenzie have been invited to attend.

Dr. Edward Delehanty of Denver was recently called in consultation by Dr. R. E. Crane, Sheridan. This was Dr. Delehanty's first trip in this part of Wyoming. He has expressed the desire to attend the Tri-State meeting in Yellowstone National park, August 27, 28, 29. This meeting will be open to the profession of the world, and it is the special desire of the societies arranging this program that our neighboring states, Utah, Colorado and Nebraska, consider themselves especially invited to attend.

Northwestern Medical Society

Dr. and Mrs. W. W. Horsley have recently returned from a trip overland to the Pacific coast. They think California a wonderful country and saw a large part of it in the six weeks they were away, but they still like the Big Horns very well. On account of the amount of "tularaemia" cases seen in the northwestern part of this state by the Big Horn basin doctors, Dr. Horsley was particularly interested in that county of California from which the first cases were reported, namely: "Tulare," and from which county the disease was given its name.

Dr. W. H. Collins of Sunrise, Wyo.; Dr. E. F. Scheidegger of Green River and Dr. Myron L. Crandall of Rawlins are all new members who have joined the State Society in the past month.

Our president, Dr. A. P. Kimball, of Casper, Wyo., has recently moved to Logan, Utah. We feel, as a State Society, that we have lost one of our most prominent and honored members. Utah has gained him. The good wishes of every member of the profession in Wyoming go with the Doctor and Mrs. Kimball in their new location. He has been one of the outstanding surgeons in Wyoming, and has always shown the keenest interest in the welfare of the Casper Hospital, the Natrona County Medical Society and the Wyoming State Medical Society.

As an evidence of the high esteem in which he is held by the members and officers of the State Society, it has been decided by the vice president, Dr. J. L. Linn of Lander, who, under our constitution, could claim the office of the president, by reason of the removal to Utah of Dr. Kimball, not to accept the presidency, but to allow Dr. Kimball to serve out the rest of his term, even though he be now located at Logan, Utah. It no doubt will be a great pleasure to all members to know that Dr. Kimball expects to be with us in the Tri-State meeting in the Yellowstone park in August.

MIDLAND EMPIRE MEDICAL CONFERENCE

The medical and surgical clinics of the Midland Empire Medical conference was held Tuesday, March 27th, at Billings, Mont., at which time the following program was carried out:

Heart Diseases and Demonstration of the Cambridge Electro-Cardiograph by W. G. Richards, M.D., Billings.

Discussion by M. D. Winter, M.D., of Miles City, and R. Broughton, M.D., of Laurel.

Treatment of Gastric Ulcers by G. M. Russell, M.D., Billings.

Discussion by J. C. F. Siegfriedt, M.D., of Bearcreek, Wyo.

Congenital Hypertrophic Pyloric Stenosis by A. E. Stripp, M.D., Billings.

Catarrhal Diseases of the Middle Ear by W. R. Morrison, M.D., Billings.

Discussion by Earl Whedon, M.D., of Sheridan, Wyo., and L. H. Huber, M.D., of Livingston.

Urological Factors in Reduction of Surgical Mortality by J. D. Barrett, M.D., Billings.

Discussion by E. M. Adams, M.D., of Red Lodge.

Malignant Growth of the Thyroid Gland by E. W. Theurer, M.D., Billings.

Discussion by G. M. Jennings, M.D., of Missoula, and F. F. Attix, M.D. of Lewistown.

This conference was attended by about sixty members of the profession, quite a few coming from the northern part of Wyoming.

Clinics were held in the morning at the Deaconess Hospital and at St. Vincent's Hospital.

Luncheon was served at St. Vincent's Hospital, followed by the scientific papers as above mentioned.

An enjoyable banquet was held at the Northern hotel in the evening, after which an athletic entertainment was provided at the fair grounds. Every doctor of medicine, who came to Billings for this event, was the guest of the Yellowstone Valley Medical Society, and cordially welcomed.

This conference has been a yearly affair, and each year it has been more and more helpful and the attendance is growing yearly. This year's conference was one of the most enjoyable ever held.

SWEETWATER COUNTY

Dr. Oliver Chambers was called to Salt Lake City on account of the developing of pneumonia in Mrs. Chambers' father, A. J. Bosworth, age 76.

Dr. J. H. Goodnough, health officer of Sweetwater county, has been busy with an outbreak of scarlet fever, twenty-four cases reported in the month of March.

Dr. H. J. Arbogast spent several days visiting his father at Olney Springs, Colo.

Dr. Roe gave a talk to the Rock Springs Lions Club on the symphony orchestra, and a brief history of the organization, in Rock Springs, Wyo.

The Child's Bill of Rights

The American Child Health Association is fostering the plan of "May Day for Child Health." Its ideal and working program in an increasing number of communities throughout the country is that there should not be a child in America

That has not been born under proper conditions.

That does not live in hygienic surroundings.

That ever suffers from undernourishment.

That does not have prompt and efficient medical attention and inspection.

That does not receive primary instruction in the elements of hygiene and good health.

That has not the complete birthright of a sound mind in a sound body.

That has not the encouragement to express in fullest measure the spirit within which is the final endowment of every human being.—Mental Hygiene Bulletin.

"Thankful What have I got to be thankful for? I can't pay my bills?"

"Then, man alive, be thankful you are not one of your creditors."

BOOK REVIEWS

An Introductory Course in Ophthalmic Optics. By Alfred Cowan, M.D., Assistant Professor of Ophthalmology, in the Graduate School of Medicine, University of Pennsylvania. With 121 Illustrations. Many in Colors. Philadelphia: F. A. Davis Company, Publishers, 1927. Price, \$3.50. This contains one hundred and twenty-one illustrations most of which are algebraic formulae.

The author announces that the main purpose of this volume is to convey a working knowledge of ophthalmic optics to students and practitioners. He has presented a system which can be followed by one having an elementary knowledge of mathematics. MELVILLE BLACK.

Troubles We Don't Talk About. By J. F. Montague, M.D., F. A. C. S., of the University and Bellevue Hospital Medical College; Lecturer on Rectal Pathology; Fellow, American Medical Association; American Proctologic Society, American Association for the Advancement of Science, American Society for the Control of Cancer, New York Academy of Medicine and New York Pathological Society. Illustrated. Philadelphia, London, Chicago, Montreal: J. B. Lippincott Company. Price, \$2.00.

In reviewing this book I have become convinced that it is the intention of the author, that this volume is to be placed in the home rather than in the hands of the physician, and while it savors somewhat of the alarmist type, it does contain much valuable information on diseases affecting the rectum and colon, even more and better information than many of us received while gaining our medical training.

I can fully agree with nearly all of Dr. Montague's ideas of causes, effects, and treatments outlined, but am not sure that it is wise to give the public as much mental worry as it seems to me they would get when they read this book. Cancer is mentioned many times to urge the importance of early rectal examination, and while it is true that the rectal man rarely sees a case of cancer until it is too late to be of service, in my personal experience, cancer of the rectum is not as common as this book would lead one to believe. While the fear of cancer of the rectum might induce some to seek an examination, I think there would be many more who would suffer mentally, but would not submit to the rectal examination.

If the family physician would read this book, he would learn a great deal about the far-reaching effects of rectal disease on the general health, and we could then leave it to him to impress his patient with the importance of an examination.

ATWATER DOUGLASS.

The Mechanics of the Digestive Tract. An Introduction to Gastroenterology. By Walter C. Alvarez, M.D., Associate Professor of Medicine University of Minnesota (The Mayo Foundation), with One Hundred Illustrations. Second Edition. Paul B. Hoeber, Inc.: New York, 1928. Price, \$7.50.

In the second edition of "The Mechanics of the Digestive Tract," Dr. Alvarez has presented material which will well repay perusal upon the part of any physician who is interested in his own or his patient's welfare. W. V. GAGE.

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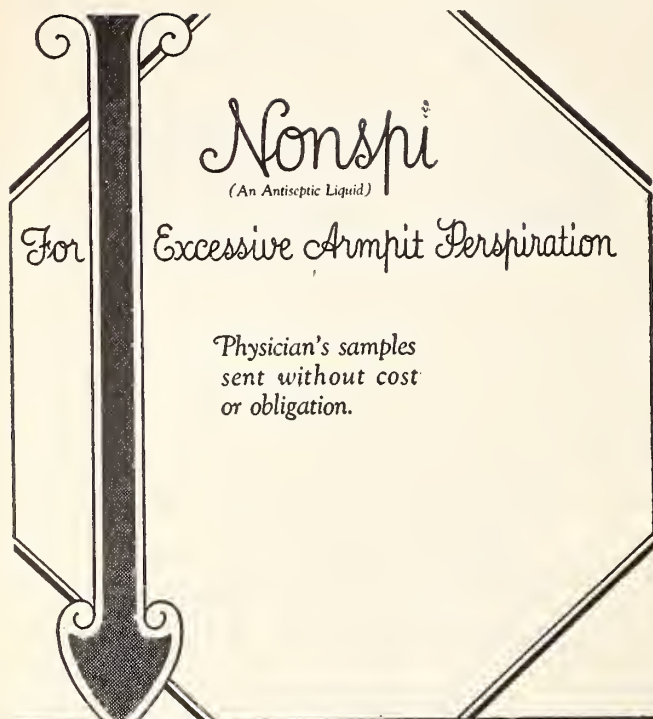
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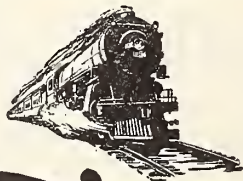
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TUNING IN

An Epidemiological and Statistical Study of Tonsillitis, and Related Throat Conditions

In view of the widespread attention which has been given in recent years to tonsil defects and their remedy by tonsillectomy, the United States Public Health Service has made a study of acute and chronic diseases of the tonsils and throat. The results of this study are to be found in Public Health Bulletin No. 175, recently issued.

The data used consist of (a) records of sickness occurring in several groups of people kept under observation for illness for several years, and (b) results of physical examinations made by medical officers of the United States Public Health Service in the course of various field studies conducted during the past ten years. The bulletin considers acute tonsillitis and sore throat, enlarged and diseased tonsils as found on physical examination, and the relation of the condition of the tonsils to illness and to physical defects. Mortality from diseases of the tonsils and pharynx is also briefly considered.

Some of the outstanding results are that the incidence of tonsillitis and related conditions of the pharynx is higher among children of school ages than before or after those ages. Laryngitis, on the other hand, appears to occur more frequently among adults than among preschool or school children. Tonsillitis and related conditions of the pharynx appear to be the only important respiratory affections which show this particular age incidence; that is, higher during the school ages than among younger or older persons. The incidence of tonsillitis and related conditions of the pharynx appears to be considerably higher for females than for males.

The incidence of sore throat seems to be more than twice as great for school children with defective tonsils as for those whose tonsils have been removed. The incidence among children with normal tonsils also appears to be less than among those with defective tonsils.

Respiratory diseases other than tonsillitis appear to be somewhat more frequent among children with defective tonsils than among those with normal tonsils and those whose tonsils have been removed. Among adults there seems to be little difference in the incidence of these respiratory diseases in the different tonsil groups.

The incidence of illness from rheumatism and related conditions appears to be higher among adults who have attacks of tonsillitis than among those who are free from tonsillitis.

The incidence of diphtheria among children with defective tonsils seems to be much higher than among children whose tonsils have been removed. Among children with normal tonsils it appears to be only slightly higher than among those whose tonsils have been removed.

The results of the physical examination suggest that adenoids, enlarged cervical glands, conjunctivitis, eye strain, and decayed teeth all tend to be slightly more prevalent among children with defective tonsils than among children with normal tonsils or among those whose tonsils have been removed.

Height and weight measurements and records of growth in weight over a period of nine months for a group of school children did not show any advantage in the growth of one tonsil group over another. Data from the literature seem to indicate a more rapid growth immediately following tonsillectomy, but this does not appear to continue for any extended period of time.—Health News.

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American Medical Editors' Association

With the death of the last President, Dr. Henry O. Marcy, the American Medical Editors' Association became inactive and remained so for five years. At the time of Dr. Marcy's death, one hundred and seventeen editors were on the roster.

Early in January, 1928, the present President, Dr. H. Lyons Hunt, called a meeting of a few of the New York editors to discuss the advisability of reviving the association. The vote of those present was unanimous that this should be done.

That a need was felt for the organization, can best be demonstrated by the fact that not only practically all members of the old association came in, but over one hundred new members made application, so that today the American Medical Editors' Association is stronger and more powerful than it has been in its entire history.

As the organization swung into power, numerous meetings were held, officers elected and committees appointed to study and promulgate a tentative platform representative of the American Medical Editors' Association. Just how the entire association will stand on these subjects, will largely depend on the information gleaned on each by the committees appointed.

That the association is functioning with enormous activity, is shown by the fact that committees have been appointed to study and advocate a stand for the association on the following subjects:

"Medical Journal Endowment Fund." (This is a rather new idea, but there seems no reason why medical schools and hospitals should receive endowments while medical journals and those who run them, often at considerable personal sacrifice, should not look to share in a central endowment fund. Certainly the medical journals constitute one of the greatest forms of medical instruction and teaching in the country and through the profession are of untold value to the health of the nation.)

Committees have been formed to study ways and means of "Standardizing Medical Education" and "Standardizing Medical Licensing Examinations." "Bringing About International Medical Reciprocity." (Four committees, one in Canada, one in the States, one in England and one in France have already been appointed to study this subject.)

Committees to study "Workman's Compensation," "Pay Clinics," "Commercial Laboratories," "Open Hospitals," "Medical Compensation," "Drug Store Prescribing," "Pharmacy and Therapeutic Products," "Electrotherapeutic Apparatus," "Prohibition."

Committees on "Legislation," "Advertising," "Publicity," "Policy," "Public Health," "Medical Economics," and so on, all studying certain questions and working out solutions for the problems involved, for the advancement and elevation of the medical profession and of medical journalism.

The officers of the American Medical Editors' Association are working with might and main for the benefit of its members and deserve their full support through the journals they edit in advocating the policies the association stands for.

A sailor who had been stopping at a fashionable hotel and who was paying his bill, looked up at the girl cashier and asked what it was she had around her neck.

"That's a ribbon, of course," she said. "Why?"

"Well," he replied, "everything else is so high around here that I thought perhaps it was your garter."—Kablegram.



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Ampoule Specialties

A Decade of Health Work in New York State and Some of Its Results

In 1917 the mortality rate was 15.2. In the first ten months of 1927 it was 12.3. In ordinary language this means that there are living today in this state nearly 28,000 persons who would have died during 1927 had the 1917 rate prevailed. Of this number, 6,000 are babies, for in 1917 ninety infants died before their first birthday—today but sixty.

If similar computations were made for each of the years since 1917 the total of lives saved in this period would be equal or greater than the population of a city like Albany.

Deaths of young children from diarrheal diseases have decreased almost 75 per cent. in ten years. This saving in 1927 was over 3,000 young lives. This is due largely to the continued betterment of milk supplies and probably will be still further improved when the new milk code, undoubtedly providing the highest milk standards yet adopted in this country, goes into effect on July 1, 1928.

The death rate from pulmonary tuberculosis has been cut in two since 1917. Almost 7,000 persons are living today who would have died during the past year had former conditions prevailed. Many factors have had a part in bringing about this result, not the least of which are the doubling of clinical facilities and an additional 1,000 hospital beds devoted to the care of victims of this disease.

The toll of typhoid fever has been reduced three-quarters in the past decade, evidencing the continuous and careful supervision exercised over public water supplies, sewage systems and milk pasteurizing plants.

Diphtheria deaths were only one-half as many as in 1917. If the campaign for its eradication now going on is vigorously conducted it should not be many years before this dread disease of childhood becomes as rare as smallpox in this state.

There were less than 90,000 diagnostic examinations made in 1917 as compared with 225,000 in 1927.

Since the advisory service for expectant mothers was inaugurated in 1922 there has been a reduction of 33 per cent. in the rural sections in the death rate of women from causes associated with childbirth. It is in the rural sections that the work has been directly supervised by the State Department of Health and where the greatest amount of educational work has been done.

The urban death rate from these causes, however, has not decreased; in fact, it has increased, and it is possible that a part of the decrease in rural sections is due to more women being confined in city hospitals. But four states in the Union now show lower maternal death rates than New York.—Health News.

When Infantile Paralysis Is Epidemic

Dr. Charles H. Mayo says that it is futile to attempt to run away from infantile paralysis after the epidemic begins, because recent experiments have shown that at such a time the germs of the disease exist in the throats of almost all children and of many adults, most of whom never show any signs of the sickness. "The best thing to do," he says, "is to remain at home, guard the children against over-fatigue and indiscretions of diet, give them a little extra rest during the day, and watch their temperature."—Children's Bureau.



ULTRAVIOLET *in the Treatment of* OTITIS MEDIA

References: Dr. I. O. Denman, Ear, Nose and Throat Monthly, March 1923 and January 1926. Dr. H. Gerstenberger, Amer. J. of Diseases of Children, Oct. 1922, p. 320. Dr. J. Zahorsky, Mo. State Med. Jour., Feb. 1925. Drs. A. R. Hollender and Maurice H. Cottle, Amer. J. of Phys. Therapy, Apr. 1925, and Eye, Ear, Nose and Throat Monthly, Feb. 1925.

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In comparing the 1927 death rate with that of the year before, it should be kept in mind that the 1926 death rate was well above the trend of recent years, and taken by itself as a basis of comparison, would unduly emphasize the savings of 1927. The real significance of the improved death rate of 1927 is gained when compared with death rates further in the background. Thus, it is encouraging to note that the 1927 insurance death rate per 100,000 persons was 12.2 lives lower than in 1925, and 4.5 lives lower than in 1921, which latter year was shown by federal census reports to be the healthiest year prior to 1927.

By means of these insurance records, we are able to project the mortality curve through last year and gain approximate knowledge of the 1927 national health situation. On the assumption that the death rate among the entire population of the United States improved, throughout last year, to the same extent as among insured lives, for the first ten months of the year, it is estimated that the aggregate deaths in the United States during 1927 totaled 1,386,000 against 1,432,000 during 1926—46,000 less deaths notwithstanding a material increase in population. But this is not the complete picture of the saving effected, for had the 1926 death rate prevailed during 1927, with the increase in population there would have been 1,451,000 deaths. Thus there was an actual saving of 65,000 lives during 1927.—Secretary Association of Life Insurance Presidents.

Iron Foundry Workers Show Highest Percentage of Deaths from Pneumonia

An analysis now being made of the causes of death, by occupation, among white male Industrial policyholders of the Metropolitan Life Insurance Company (covering the years 1922 to 1924) has brought to light many striking differences in the distribution of deaths by causes among the occupational classes investigated. The proportion of deaths from some causes, notably pneumonia and other diseases of the respiratory system, in certain occupations is found to be so much higher than the average for all occupations as to leave little doubt that there is a direct casual relationship between the occupation and the high incidence of the disease. One of the outstanding results of this investigation is the discovery of an unsuspected amount of pneumonia in certain occupations.

The harmful effect of industrial environment favoring the development of pneumonia is shown in the abnormally high percentage of deaths among the iron foundry workers. Pneumonia accounted for 15.9 per cent of all deaths among these workers, while only 7.7 per cent of the deaths among all occupied males were attributed to this cause. The percentage of deaths is well above the average at every age of the main working period of life, 15 to 64 years. In the age period, 25 to 34, it is over three times the average. The very lowest relative percentage is found in the period 35 to 44 years, and even here it is 86 per cent above the average. Not only do iron foundry workers have the highest percentage of deaths from pneumonia of any occupational class, but there were actually more deaths from this cause among them than from any other cause. This is true of no other occupational class included in the Metropolitan's investigation.

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Abie: "Nickels—Mugwump."

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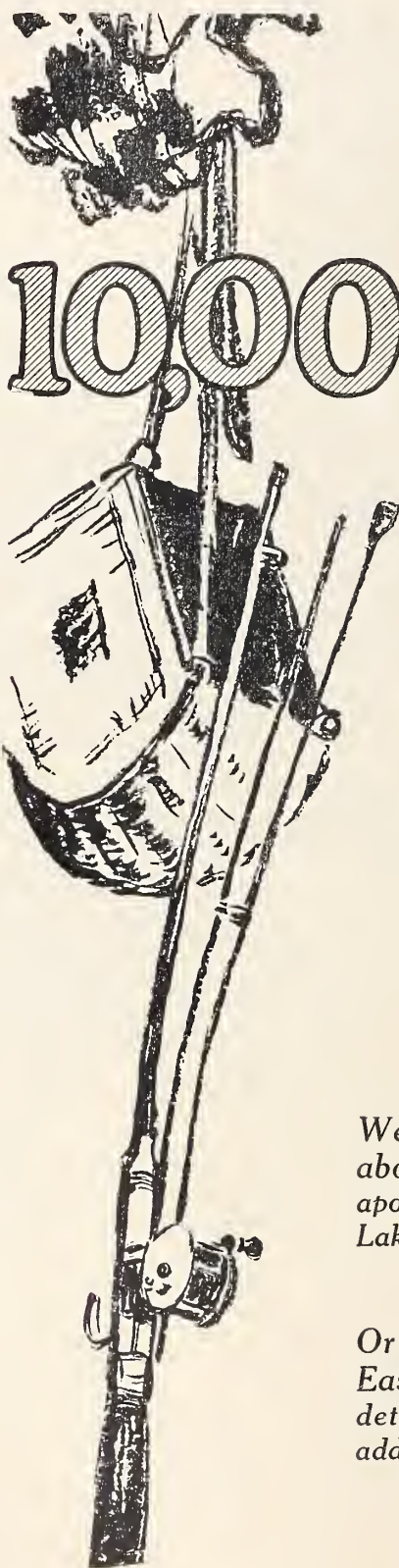

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C. F. KEMPER, M.D., Denver, Colorado.

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SCHOOL OF MEDICINE

CLASS of 1928

ANGIOSARCOMA OF THE TONGUE REMOVED BY AN UNUSUAL OPERATIVE PROCEDURE, WITH APPARENT RECOVERY

LEONARD FREEMAN, M.D.,

Department of Surgery, University of Colorado School of Medicine,
DENVER

A sick-looking Mexican boy, five years of age, entered the Colorado General Hospital, from Longmont, sometime in March, 1927, with a tumor of the tongue. It had originated some two years previously, deep in the tissues of the middle one-third of the right side of the organ, and gradually enlarged until it occupied almost the entire mouth, rendering swallowing difficult and



Figure 1. What is seen in this picture is not the tongue itself, but the tumor, which practically fills the mouth. Note the excrescence on its upper surface.

articulation impossible (Fig. 1). Its size approached that of a large walnut or a golf-ball. At one point upon its superior surface was an excrescence as large as the end of a finger, and at another point an unhealthy ulceration, which added much to the little patient's inconvenience. He was obliged to hold his mouth partly open and saliva drooled from it more or less constantly. There were many enlarged cervical lymph-nodes, especially in the submaxillary regions, which were discrete, rather soft and not very tender, some of them the size of

marbles. There was a moderate rise in temperature with a corresponding leukocytosis. A Wassermann test was negative.

The tumor was firmly elastic, but not fluctuating, and there was nothing in its color or feel to suggest either a cyst or an angioma, the former being also excluded by puncture with a hollow needle. A biopsy was made, but unfortunately revealed nothing but inflammatory tissue. Following this the temperature rose to such an alarming extent, with great swelling of the tongue, that it was feared to repeat the procedure.

Taking into consideration the appearance of the growth, the enlargement of the cervical glands and the cachectic look of the patient, a tentative diagnosis of sarcoma was arrived at; but an operation seemed to present so many difficulties and offer so little prospect of cure, to say nothing of the prospective mutilation, that it was approached with hesitation. Finally, however, after the dermatologist had refused to consider the use of radium, surgical intervention was decided upon, because there seemed to be nothing else to do.

On April 2, 1927, ether was administered by Dr. Draper, the jaws held apart with a mouth-gag and the tongue pulled out to its full extent by means of a ligature through the tip. To the surprise of the operator the tumor could be drawn entirely out of the mouth, revealing a small portion of the posterior part of the tongue free from the growth.

The problem then was to remove this large, vascular, nonpedunculated mass, without undue hemorrhage. This was accomplished with the help of two long mattress-needles. One of these was weaved in and out of the mucosa superficially across the top of the base of the tongue, while the other was similarly applied below, so as to grasp the organ between them. The ends of the needles, which projected from the corners of the mouth, were then firmly

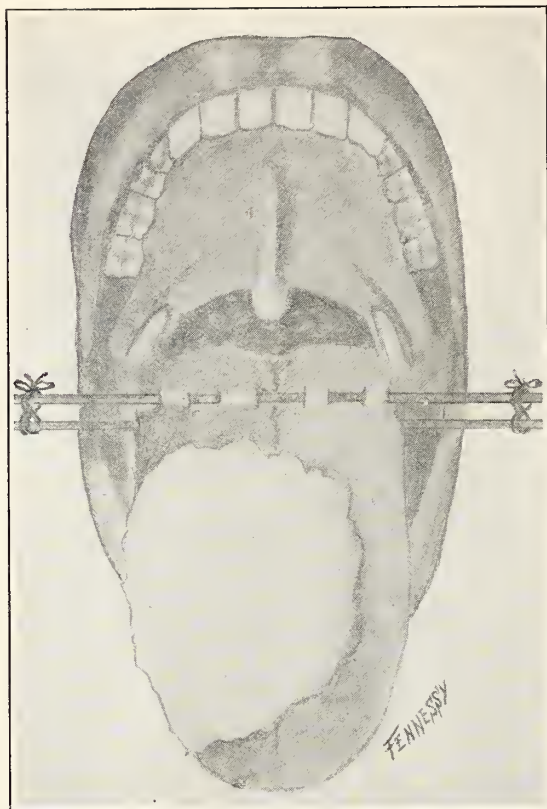


Figure 2. Showing needles in place, with elastic construction by means of rubber bands around the needles.

bound together with ordinary rubber bands, one on each side (Fig. 2), thus firmly compressing the intervening tissues and controlling the circulation. It was impossible for the needles to slip because of their hold in the mucous membrane; in fact, they were used as tractors to keep the tongue well out of the buccal cavity during the subsequent manipulations. If it were required by the peculiarities of the case, I believe that the needles could be passed without particular harm through the substance of the cheeks, instead of bringing them out of the corners of the mouth.

After the tourniquet was adjusted the remainder of the operation was comparatively easy. The tumor, which was largely, but not completely, encapsulated, was partly enucleated and partly cut from its surroundings, leaving a large, irregular defect upon the right side and extending well over to the left. Fortunately the tongue was rather large, so that by careful stitching with chromic gut it was reconstructed into some sort of resemblance to the normal. No attempt was made to remove the large glandu-

lar masses from the neck and the hypertrophied tonsils were not interfered with.

The patient stood the operation remarkably well, although on the following day there was much enlargement and an alarming reaction, the temperature rising to 104.5° , accompanied by much swelling of the cervical lymph-nodes. Gradually, however, this unfavorable condition subsided, and when the boy left the hospital, at the end of about two weeks, he was in reasonably good condition, outside of a swollen neck and tongue, which was somewhat uneven in contour and not entirely healed.

The report from the pathological laboratory was angio-sarcoma, thus confirming the previous diagnosis of malignancy and rendering the prognosis practically hopeless.

Desiring to follow up the case a number of letters were written, but without eliciting any response; so on April 14th, a little over a year after the operation, I went to Longmont, principally to find out when and how death had occurred. To my surprise, I found him not only alive, but in excellent condition. His tongue, although badly scarred and somewhat deformed, was equal to all his requirements, and I was told that he could talk fluently. The glandular swellings in his neck had disappeared, except some small nodes in the submaxillary regions, which could be accounted for by the enlarged tonsils. No recurrence of the tumor could be detected anywhere—the boy seemed to be as well as any other boy.

Comment. A case such as this serves to emphasize the fact that conditions which apparently are hopeless sometimes respond to surgical measures most unexpectedly. This suggests that we still have much to learn regarding the diagnosis and treatment of malignancy, and that we should not be too hasty in making an unfavorable prognosis.

Colorado Springs to Have a Child-Guidance Clinic

A clinic which will serve the juvenile court, the schools, and the social agencies and organizations of Colorado Springs and El Paso county is being established at Colorado Springs by the Taylor Foundation, a private philanthropy. It will function as a community child-guidance clinic after the manner of those established as a result of the demonstrations of the national committee for mental hygiene in a number of cities during the past five years.—Children's Bureau.

A NEW TYPE OF PIN FOR USE IN THE OPEN REDUCTION OF FRACTURES

EDWARD F. DEAN, M.D.

Department of Surgery, University of Colorado School of Medicine,
DENVER

In the open reduction of fractures a large variety of mechanical appliances have been placed before the medical profession. The main difference between the types being whether or not they can be removed without exposing the patient to additional surgery after accomplishing their part in sustaining the fragments in proper alignment.

Some years ago Dr. Clayton Parkhill¹ presented an apparatus consisting of four pins and clamp for the open reduction of fractured bones. This was later improved upon by Dr. Leonard Freeman² and has been in use for the past thirty years.

This appliance can be spoken of as an external internal splint which holds the ends of the fractured bone in place at the site of fracture and also has an outside communication which expedites its removal without surgical procedure or anaesthesia.

The new type of pin presented by the writer is one made up of two parts, a drill

portion and a screw part. The drill portion is an integral part of the pin by an extension of the pin downward from the screw portion of one-quarter inch, this part being cut into the proper sized drill to create a hole with the screw portion above, the screw portion following into the hole immediately after the hole has been drilled. The pin is set in a Stille drill and at one drilling is screwed into the bone and remains there until finally removed at the proper time. This pin eliminates the preliminary step of separate drilling and accomplishes the drilling of the hole and setting of the pin at the same time. It cuts the procedure of setting the pins, about one-half in time and work, lessens the chances of infection and leaves no dead space between the end of the pin and the bottom of the hole.

Removal of the pin can be accomplished easily by the reversed method of putting it in.

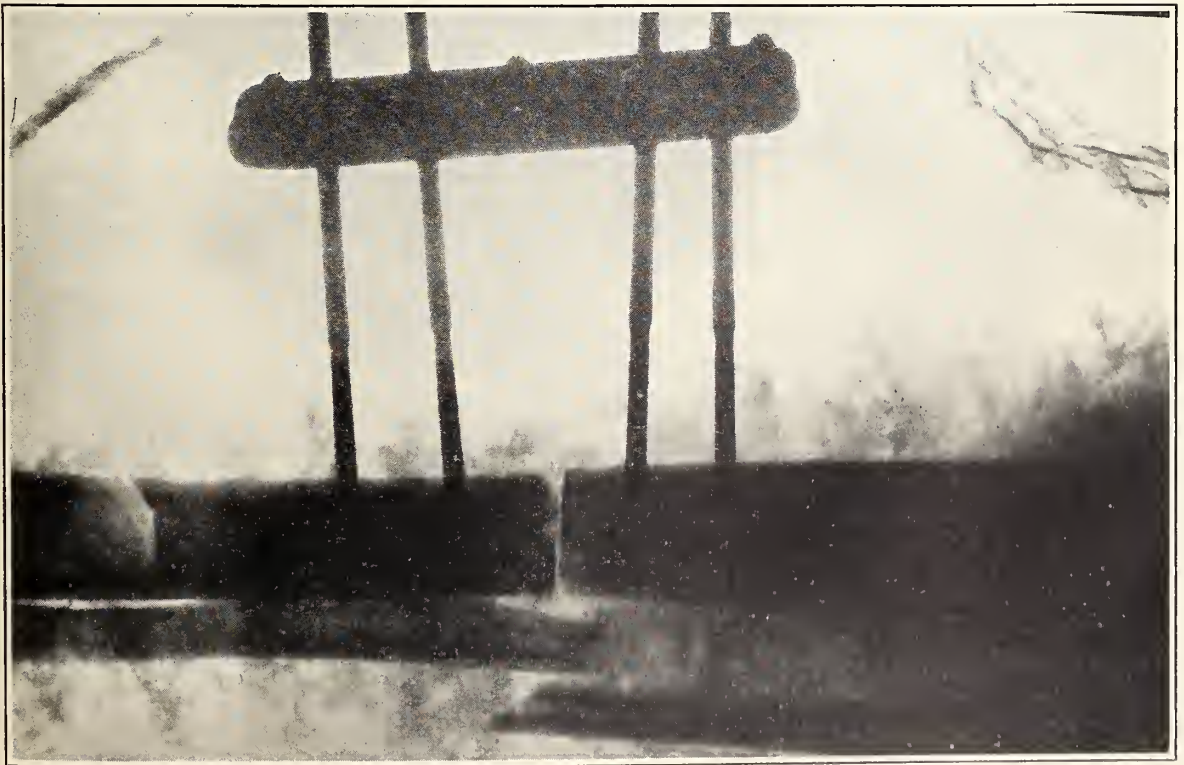


Fig. 1

X-ray of fracture with clamp and pins in position in a Plaster of Paris cast, taken two weeks after application of the pins.

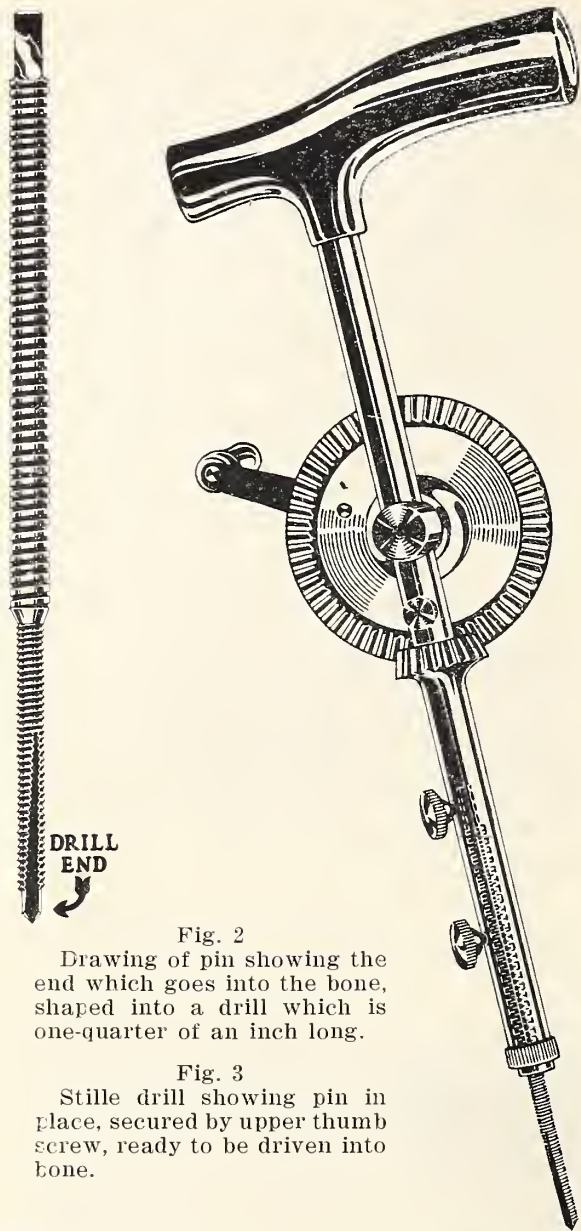


Fig. 2

Drawing of pin showing the end which goes into the bone, shaped into a drill which is one-quarter of an inch long.

Fig. 3

Stille drill showing pin in place, secured by upper thumb screw, ready to be driven into bone.

This pin does not require the use of a wrench or clock key to put into place and is easily drilled in by a Stille drill.

A Stille drill is the only instrument required to put the apparatus on, and likewise to remove the pin, the Stille drill being bored out in the center of the shaft to receive the pin so that it protrudes from the lower end of the shaft about one inch and one-half, and is held in place inside the shaft by a set screw, regulated in the side of the shaft.

The accompanying x-ray picture (Fig. 1) shows the clamp in position on the tibia, taken through a Plaster of Paris cast, at the end of two weeks after the clamp was applied. This case followed a compound fracture which was healed for two weeks before operation.

The drawing of the pin (Fig. 2) displays the drill end with the milled grooves on either side extending up into the screw portion of the pin.

The cut of the Stille drill (Fig. 3) shows pin in position inside of shaft of the drill with two set screws in shaft. Upper set screw secures square end of the pin when driving pin into the bone. Lower set screw is used for the same purpose when removing pin from the bone, so as to give more room between the skin exit of the pin and lower end of the shaft of the drill, in removing the pin.

At the present time the author has three cases where this pin is applied for malunion. Two sets being applied to the femur and one to the tibia.

Dr. W. T. H. Baker of Pueblo has applied one set to the femur following a healed, compound fracture of the femur at the middle third.

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American Men of Science

The first edition of this Biographical Directory of American Men of Science was published in 1906, the second edition in 1910, and the third edition in 1921. The fourth edition contains the records of about 13,500 living men of science, as compared with about 4,000 in the first edition. No single book of reference can cover the whole of North America and all lines of activity; it therefore became necessary to prepare special works. This volume, devoted to the men of science, sets standards in its treatment of a group on which the material prosperity and intellectual leadership of the country depend.

A TEACHING SUGGESTION OF THE CANCER PROBLEM

CASPER F. HEGNER, M.D.,

Department of Surgery, University of Colorado School of Medicine,
DENVER

Carcinoma of the surfaces of the body, especially in areas as accessible as the female breast, continue to take an unwarranted number of lives.

This, notwithstanding the splendid work that has been done and still is being carried on by the American Society for the Control of Cancer. The slogan "early recognition and early removal of cancer" has wrought considerable improvement in the cancer problem.

The technic of operations for radical removal of the mammary gland with the physiologically related lymph nodes has about reached the stage of perfection. Further progress in operative procedures does not seem possible.

Some other angle of approaching this problem capable of improving the morbidity and mortality of cancer of the breast must be sought. The profession and laity should shift their attitude of attack on early cancer to one of attack before cancer has begun.

Physicians were formerly taught and the principle is still deeply rooted in the medical teaching to consider a lesion of the breast as cancer, and as such is removable only when all the classical signs of unmistakable malignancy are present. This teaching may be correct from a diagnostic viewpoint, but it is hazardous from every other viewpoint.

The long-standing tumor in the breast that has without apparent provocation changed in character, with adherent or ulcerated skin, with retracted nipple, with distinctly enlarged or palpable axillary glands and moderate cachexia is undoubtedly malignant. This is the fully developed lesion (not early) all too frequently presented by the patient to the surgeon. He recognizes the dubious prognosis even with a most radical removal. The physician, true to his teaching, has watched and waited until an exact diagnosis could be made. This watchful waiting principle should be changed to one of aggression, attacking and removing the lesion before a positive picture of even early

malignancy has a chance to develop. We should operate not to remove cancer but to prevent its possibility.

The medical student of today should be forcefully impressed with the fact that every tumor, cyst or nodule in the breast is potentially malignant. Every such lesion is primarily surgical though not necessarily immediately operative. Such lesions are abnormal in character, are prone to irritation and irritation frequently repeated is commonly accompanied by or leads to changes that sooner or later become malignant within the lesion itself or in the immediately surrounding tissues. It is not advisable to wait for such changes before operating. Waiting can only increase the hazard to the patient and the magnitude of the operation.

Early cancer cannot by any method which we now possess be diagnosed with even a slight degree of certainty. The teaching should be to remove all such lesions before they present characteristics of certain malignancy. The maximum results will be attained when we no longer see fully developed cancers.

If we continue to teach the diagnostic features of positive malignancy our students will wait until these signs are present before acting. Watching for the transition from a benign or doubtful lesion to that of a positive malignant one is wrong. We compromise the chances of curing the patient by this very certainty. It were far better to be less considerate of our diagnostic acumen and more considerate of the patient's welfare.

Any patient would prefer to have a benign lesion or probable cancer removed with certainty of cure than to have a positive cancer with uncertain cure.

Cancer Society Offers Prize for Poster

In cooperation with the Art Alliance of America, the American Society for the Control of Cancer has offered cash prizes of \$500, \$250 and \$100 for the best poster designs for use in its cancer campaign.

Particulars may be obtained on application to the New York City Committee of the Society, 34 East 75th Street, New York City.

GENITO-URINARY SYMPTOMS IN ACUTE APPENDICITIS

GEORGE B. PACKARD, JR., M. D.,

Department of Surgery, University of Colorado School of Medicine,
DENVER

Probably no disease is seen more frequently by the general surgeon than acute appendicitis. Yet in spite of his wide experience with the condition, a case will from time to time be wrongly diagnosed and operation be delayed. In two cases of appendicitis met by the writer during the past year the symptoms were so suggestive of a genito-urinary condition that in neither case was the true condition diagnosed until abscess had formed.

In this connection it is interesting to note that Osler¹ in his "Practice of Medicine," makes the following statement in discussing the symptoms of appendicitis: "In addition may be mentioned great irritability of the bladder which I have known to lead to the diagnosis of cystitis." Frequency and urgency of micturition are certainly not rare in attacks of acute appendicitis, but are so frequently overshadowed by the abdominal pain that little notice is taken of them. Probably due to congestion and a further stage of bladder or ureteral irritability is the occasional occurrence of hematuria. A few red blood cells in the urine are frequently found in cases of retroperitoneal appendicitis; but frankly bloody urine is rare and when present it may naturally mask the diagnosis. Such cases are reported in the literature, some in which the blood comes directly from the right ureter and others in which the blood is apparently due to bladder congestion. It is not within the scope of this brief report to enter into the differential diagnosis.

CASE REPORTS

Case No. 1—A laborer, 24, entered the hospital on May 6, 1927, because of increasing difficulty in urination. Nothing in his past history was significant except that he had had gonorrhea four years previously, lasting six weeks. About three weeks before admission he had been seized with cramps across the lower abdomen and with trouble in urinating. The trouble consisted of frequency and urgency which steadily increased until he had to void about every twenty minutes, day and night. Then he began to dribble almost constantly. For the past five days, he has been unable to pass over an ounce of urine at a time and has been in constant pain, supposedly from a distended bladder.

Examination on admission was made by Dr.

Harry Wear. The abdomen showed marked tenderness across the lower abdomen and a palpable mass, probably distended bladder. Catheterization was impossible as an obstruction was met one inch from the external meatus. A filiform was passed to the bladder but no urine obtained. On the following day the anterior stricture was divided and the bladder entered with a cystoscope. Rectal examination did not reveal prostate or seminal vesicle disease but did show a mass high in the pelvis. On the assumption that there was extra-peritoneal abscess from the seminal vesicles or from urethral injury, incision was made above the symphysis over the palpable mass and pus obtained. Drainage here apparently relieved the bladder symptoms but cramp-like pains across the lower abdomen persisted, there was increasing though varying distension, and the mass in the pelvis became more apparent. The blood showed 16,500 whites, the urine showed a small amount of albumen with a few pus cells and red blood corpuscles in the urine. Temperature ranged from 99 degrees to a little over 100 degrees. Except for cramps and distension the patient did not appear particularly sick.

On May 14 the abdomen was opened through a lower right rectus incision. There was found a huge pelvic abscess covering the bladder but well walled off from the upper abdomen. The appendix was found with difficulty as the tip had sloughed off and it was buried in a porky exudate. Pelvic drainage through the operation wound was instituted and the patient made an uneventful convalescence as the drainage gradually lessened. He was discharged cured and had no further symptoms of bladder or intestinal nature.

For three weeks before hospital admission and for several days after, this patient was treated for genito-urinary disorder. Whether early abdominal palpation and more careful sifting of symptoms would have revealed a diagnosis of appendicitis at onset I do not know.

Case No. 2—A farmer, 53, entered the Colorado General Hospital, September 5, 1927, and was assigned to the genito-urinary service because his chief complaint was bloody urine. The previous day at 7 p. m. he had dull pain in the pit of the stomach, at midnight he vomited twice. Pain was constant but varying in intensity. Bowels moved yesterday. His urine had been a bright red, like blood, since day before yesterday, but there had been no dysuria or frequency. Past history revealed an attack similar to the present three years ago, but without bloody urine. However, he thinks he has had blood in his urine two or three times during the past ten years. He passed some gravel ten years ago.

He was well developed and nourished and apparently in moderate discomfort from lower abdominal pain. Temperature, 100.6 degrees. Examination of the abdomen showed spasm of both lower recti more marked on the right. Tenderness was present over McBirney's point, but was most marked in the flank and extended into the kidney region. There was no drawing up of the thighs and the patient could lift the extended leg. Rectal examination showed a dilated rectum but no mass or tenderness. Urine was red and bloody. Blood count showed 16,000 whites with 81 per cent polys. Blood Wassermann negative.

September 6, 1927, cystoscopic examination was made by Dr. R. G. Smith. He found a congested

bladder, an obstruction in the right ureter which he was able to pass to reach the kidney, fairly clear urine without pus from the right ureter. He stated that he believed the blood in the urine due to congestion of the bladder wall probably from an intra-abdominal inflammation.

Two days later the white count remained elevated. Tenderness had become more marked and localized in the right flank where there was distinct fullness. There were no general peritoneal symptoms.

Under gas and oxygen anesthesia (account of signs in right lung) a small incision behind into the retroperitoneal region revealed no pus but much edema and clear fluid.

Abdomen was opened by a right rectus splitting incision. Appendix was found lying external to the ascending colon, not retroperitoneal but retrocecal and reaching to the lower pole of the kidney. Appendix was gangrenous and ruptured. Pus was present. Appendectomy with drainage.

Convalescence was stormy and prolonged, due to a complicating infected wound and then to empyema of the right chest which had to be operated twice. It is possible that one operation really opened a subphrenic abscess. The hematuria promptly cleared up. The patient was discharged well November 7, 1927.

Here is a case in which the diagnosis was fairly obvious except for the complicating marked hematuria. Early operation would have made a tremendous difference in this patient's convalescence.

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TRANSPERITONEAL PROSTATECTOMY

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Prostatectomy today, in urologic practice, is a fairly well standardized procedure. There arise, however, especially in the service of a large general hospital, cases which present atypical features, unusual aspects or complications, which call for individualization, and for special management and procedure.

The case which forms the basis of this report conforms to this type:

A man, 71 years of age, was admitted to the Colorado General Hospital, January 14, 1928. When admitted, he was in acute urinary retention, with the bladder dulness extending up to the umbilicus. There was evidence of previous suprapubic drainage by trocar manifested by several puncture wounds in the prevesical area, and signs of local infection.

The past history was essentially negative. The patient had complained of a moderate frequency and a nocturia of a few years' duration with some difficulty in starting the stream. Two months ago he began to dribble (probably an overflow retention). His first complete retention occurred two weeks before entering the hospital. This was relieved by his local physician, who catheterized him with a soft rubber catheter. A few days later, it was necessary to use a metal catheter. Following this it became impossible to introduce any instrument into the bladder, and supra-pubic puncture was resorted to.

At the hospital the interne passed a small, soft rubber catheter, which was wisely anchored in. The urine was permitted to drain out very slowly, the clamped catheter being released at short intervals. After a few days of gradual decompression a larger catheter was set, permitted to drain freely, and bladder irrigations begun. At no time, however, did the immediate supra-pubic area become soft and normal, though the bladder was empty, indicating a cellular infection in Retzius space.

At this time a survey of the patient's general condition was made—heart, lungs, vessels, gastrointestinal tract, etc. The presence of cord bladder was ruled out. Blood pressure was 120 over 65. Rectal examination elicited a markedly enlarged, smooth, firm tumor of the prostate gland. There was no "stony" hardness to suggest malignancy. Skeletal x-rays were not made for metastasis. (This should be done in all cases as it may be the only evidence of prostatic carcinoma demonstrable during life.)

Laboratory findings—The urine was cloudy and examination of the sediment revealed numerous pus corpuscles, hyaline and granular casts, cylinders and a few red blood cells. Indican was present in the first few analyses. Culture negative.

The twenty-four hour urinary output averaged 2,000 c.c. These findings were considered very satisfactory.

The blood—Red cells 4 to 5 million, leucocytes 30,000 dropping to 8,000, polymorphonuclears 91 per cent diminishing to 65 per cent. Coagulation time 5½ minutes. Blood grouping IV. Wassermann negative (Kahn). Phenolsulphonephthalein 50 per cent in two hours.

Blood chemistry—Sugar 90 mg., non-protein nitrogen 32 mg., urea nitrogen 16 mg. Creatinine 1.5 mg., averages of several estimations.

Cystoscopic examination—This was made with very little difficulty, using 4 per cent novocaine as a local anaesthetic. Bladder capacity 300 c.c.; moderate trabeculation, mucosa fairly normal. No diverticulum nor stone seen. A large intravesical bilateral tumor of the prostate gland obscured both ureteral orifices. Diagnosis—benign adenoma. An indwelling catheter was re-anchored following cystoscopy and free drainage encouraged.

On January 26th, the general condition of the patient being satisfactory—appetite, bowels, mental attitude, etc., and the urinary intake and output, and laboratory findings being within normal limits, operation was attempted. Under combined sacral and abdominal block, a supra-pubic incision was made. A considerable amount of free pus was encountered originating in Retzius space.

Dense adhesions bound down the muscle, peritoneum and bladder wall into one thick mass. Prostatectomy was deferred. A Penrose drain was placed in and the incision closed. The patient was returned to the ward.

Two weeks later, the infection having practically cleared up, it was decided to again attempt to remove the obstructing tumor. This time spinal anaesthesia was used. The first incision was reopened, but it was soon evident that owing to the adhesions, fascial planes could not be separated, nor could the peritoneum be stripped off the bladder. To proceed, it was necessary to enter the peritoneal cavity and to open into the bladder from there. This was done, packing off the intestine with large abdominal sponges. An ordinary enucleation of the adenoma was then made. A slight amount of bleeding from the vesical orifice was easily controlled. The problem of closure was now to be met. Large supra-pubic tubes, hemostatic bags or accordion gauze packs would require manipulation that would increase the danger of contamination of the peritoneal sac. It was thought best to simply close the opening around a Pezzer catheter. The peritoneum, fascia and skin were also closed around the Pezzer. A small Penrose drain was left in the lower angle. The stay sutures of No. 2 chromic through the bladder were pulled up quite snugly to prevent leakage. The usual dressings were applied.

Pathological diagnosis—Glandular and interstitial hyperplasia of the prostate with chronic inflammation.

Post operative progress was very satisfactory. No leakage and no hemorrhage occurred and within a few days the Pezzer was removed and a urethral indwelling catheter anchored in. Convalescence was most satisfactory. The patient left the hospital March 14, 1928, in excellent condition.

Comment

Supra-pubic prostatectomy, under ordinary conditions is an extraperitoneal procedure. In this case, dense adhesions were present due to infection following the supra-pubic punctures. It was impossible to separate the parietal peritoneum from the rectus muscle or the visceral layer from the bladder, making it necessary to enter the latter from the peritoneal cavity. For this reason the case was thought to be of some interest.

The question of anaesthesia is a highly important one. Patients with obstructing prostatic hypertrophy are old men—their lungs, heart, vessels and kidneys are already damaged. Our experience leads us to believe combined sacral and abdominal block to be the safest method. Certainly spinal is the easiest and most satisfactory from the standpoint of the surgeon. The anaesthesia is complete and the abdomen is soft and relaxed. The chief objection to and danger from spinal anaesthesia is the usually marked drop in systolic pressure which in this case was, however, only 20 mm. We have been able to control this very satisfactorily with hypodermic injections of ephedrine as suggested by Ockerblad.

THE EFFICIENCY OF MEASURES FOR THE PREVENTION OF STATIC SPARK

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With a view to introducing the use of ethylene at the Colorado General Hospital, an investigation has been made into the dangers of static spark and of the efficiency of preventive measures.

The measurements of electrical potential quoted below were made by Dr. Broxon of the Department of Physics, University of Colorado.

Formation of Static Charges

The opportunities for the generation of electrical potentials in an operating room are very numerous. Static charges are produced by any friction between two objects and they accumulate and reach a high potential when these objects are imperfectly

grounded. Electrical potentials, therefore, accumulate on individuals walking on tile or cement floors, by the friction of clothing, sheets, etc., and on the patient as he is wheeled into the operating room on the stretcher. The rubber tubing of the gas machine is also charged by the flow of the gases through these parts.

The readiness with which static accumulates varies with the particular building and with the amount of humidity in the air. In localities and altitudes where the atmosphere is unusually dry, as in Denver, static accumulates most readily. On the other hand, if the air contains a large amount of moisture, static charges are dissipated as formed and

do not tend to reach high potentials. It follows, therefore, that static accumulates readily in the dry climate of Colorado and that the danger is greater during the winter than in the summer.

Preventive Measures

If friction can be reduced or prevented the electrical potentials are not generated as readily. The use of rubber soled shoes and rubber floor mats, by diminishing friction, greatly reduces the amount of static formed. On the other hand, rubber and most friction reducing substances are non-conductors and will prevent the draining of charges back to the earth. Since an individual may be charged before he puts on the rubber soled shoes or before he steps on the rubber mat and since the constant friction of clothes, etc., produces static charges, such measures will not prevent the gradual building up of high potentials. It is not practical, therefore, to endeavor to prevent the formation of static charges. Protection can be furnished only by providing for the dissipation of these charges into the earth.

It is the practice in many hospitals to ground the gas machine, anaesthetist, patient and operating table. Such measures, by placing these bodies at zero potential, eliminate the possibility of a spark between them. This, however, necessarily creates a difference of potential and hence a possibility of a spark between these grounded objects and any other object which is not at zero potential. It may be doubted whether the grounding of a few objects in a room really reduces the hazard of spark. In some cases, by artificially producing a difference in potential, it may even increase this danger.

The only way, therefore, to secure complete protection against static spark is to effectively ground **all** bodies in the danger area. Differences in potential are thus prevented and static spark becomes impossible.

In one hospital in Chicago in which several serious explosions have occurred, the grounding of all persons and objects was obtained by the installation of a special floor consisting of alternate bronze plates. This method has proved to be efficient but its

expense, i. e., several thousand dollars, prohibits its general adoption. As a means of obtaining the same result at a very low cost, the Colorado General Hospital purchased four large, galvanized iron mats. When laid upon the floor they are large enough to accommodate the operating table, the surgeon and his assistants, the sterile nurse and the anaesthetist, together with his apparatus. Thus, all persons who are required to approach the patient and gas machine must first step upon the mats. Grounding of the mats is secured by attaching them to a water pipe by means of a metal chain. To further secure good electrical contact with the earth the operating table, the gas machine, and the skin of the patient and anaesthetist are connected to the mat by light metal chains.

The mats are of such size that when rolled up they may be placed in an autoclave for sterilization. The total cost of these measures was only \$40.00 and they do not entail any inconvenience to the staff.

By means of an electroscope the efficiency of these measures was tested. It was found that taking four steps on the tiled floor of our operating rooms gave an individual wearing leather shoes a potential of over 500 volts. This was the maximum reading of the instrument and the actual potential may have been much higher. In the opinion of Dr. Broxon of the Department of Physics of the University of Colorado, this potential is unusually high and is probably due to some peculiarity in the construction of the building. If the individual, who was now charged with 500 volts, placed one foot on the grounded mat the potential was instantly reduced to a scarcely readable amount. Somewhat to our surprise this efficient ground connection was made through ordinary dry leather soles. An even better electrical contact would be secured if the leather soles were wet or contained some metallic connection to the bare skin. The use of rubber soled shoes would, of course, prevent the grounding action of the mat. The patient, table and gas machine on the grounded mats were also found to be a zero potential.

Some of the metallic portions of the gas machine are separated from the stand and,

therefore, from the mat by means of rubber connections. Since these rubber parts are non-conductors, it is necessary to ensure electrical contact of the insulated metallic parts to the mat. With this end in view we had the rubber parts of the gas machine coated with a special so-called trans-static

paint. The object of this paint was to make the rubber an electrical conductor. Actual experiment, however, showed that this paint conducted very poorly but that satisfactory electrical contact was easily secured by passing wires through the rubber hose and soldering it at both ends to metal.

X-RAY THERAPY

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X-ray therapy may be divided into several different classes: Superficial, intermediate, and deep.

Superficial

I. Usual, using 50 K. V. P. to 100 K. V. P. or a 3" to 6" spark gap with from no filter to 1 mm. of aluminum.

II. Ultra soft radiation around 10 K. V. P. This latter is not in common use.

X-ray treatment where it is desired to have the radiation effect confined to the

skin. Using a very light filter as one-half mm. of aluminum to minimize the differences between different Coolidge tube output, which is due chiefly to varying thicknesses of glass.

Intermediate

I. Using from around 100 K. V. P. to 150 K. V. P. and 3 mm. aluminum to one-fourth copper.

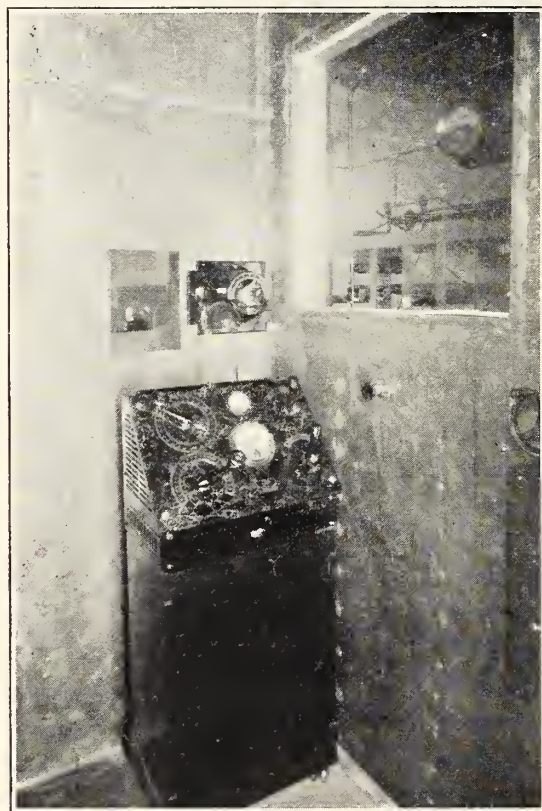


Fig. 1 shows the control room, lead lined and with lead glass windows. It contains the control stand, remote control of milliampere stabilizer and sphere gap, circuit breaker and automatic control which stops the machine if the water pressure on the x-ray tube is not maintained or the water becomes too hot.



Fig. 2 is a front view of the couch which is 39 in. by 45 in. by 105 in. This large size is necessary to give sufficient clearance for the tube terminals at this altitude.

X-ray treatment which will not only affect the skin but the underlying tissue, say to a depth of three or four centimeters. With the heavier settings in this class considerable depth effect can be produced, but with some damage, or at least tanning, of the skin.

Deep Therapy

I. Using from 150 K. V. P. to 200 K. V. P. and one-half mm. cu. to 1 mm. cu.

Cases in which no effect on the skin is desired and a maximum effect in the deeper

structures is desired. With modern, deep therapy x-ray apparatus, such as has been recently installed at the Colorado General

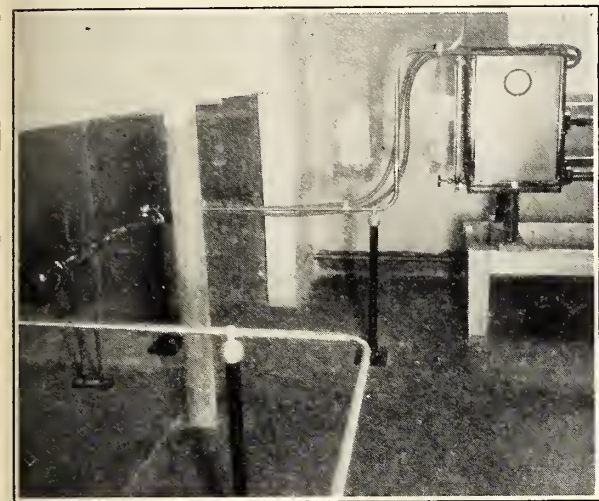


Fig. 3 shows the back and interior view of the couch, the water cooled tube and part of the water cooling system.

Hospital, it is quite possible not only to apply an erythema dose in the depth but a destructive dose without causing noticeable change in the skin. One is likely to think of deep x-ray therapy as synonymous with cancer treatment. While deep x-ray is perhaps as satisfactory a treatment as we have for malignant tumors today, still its usefulness is not limited to such cases. Metrorrhagia, fibro-myomas of the uterus, therapeutic abortions, sterilization, Hodgkins disease, tuberculous adenitis, leucemia, hyperthyroidism, and hypertrophy of the prostate are a few of the diseases in which roentgen therapy has proven satisfactory.

The new deep therapy installation at the Colorado General Hospital consists of a stabilized, water cooled, cross arm rectification unit, capable of delivering continuously more than 200 K. V. P. 30 M. A.

MILK INJECTIONS IN OPHTHALMOLOGY

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The hypodermic injection of milk has found a place in the treatment of many ocular infections.

In the endogenous infections, such as iritis, uveitis, keratitis, etc., it is of value; but not nearly as much so as in the exogenous infections. Take a penetrating wound of the cornea or sclera. An early injection of milk, before the eye shows active signs of infection, may serve to prevent such signs to a very large degree.

These cases are usually seen first by the family physician. He is many times at a loss to know what to do. He can always feel safe in dropping a 1 per cent solution of atropin into the eye and giving a hypodermic injection of from five to ten c.c. of milk into the buttocks.

The milk is the "whole milk." Shake up the bottle, pour some of it into a test tube, and boil over a flame for three minutes. If it curdles, the milk is sour and should not be used. Suck into a syringe the desired amount, cool under running water and inject into the buttocks. It will produce a violent reaction as evidenced by a rise in

temperature of from two to four degrees. The white blood count will show an increase of from four to eight thousand, and it is believed that this increase in the fighting army of the body is the reason why it inhibits infection.

A disease where the family physician feels at a disadvantage is in the early treatment of gonorrheal ophthalmia, both in the new born and adults. An early injection of milk may spell success in the subsequent management of such cases. In infants, two c.c.; youths, 5 c.c., and adults, 10 c.c. The injections can be repeated every day for five days. I have never seen any anaphylactic manifestations from milk injections, but I should be unwilling to say that it could not occur. To be on the safe side, it might be well to first inject one or two drops of milk, wait a few moments and then inject the full dose.

Potts, writing of the responsibility of doctor and patient in discovering tuberculosis, divides doctors into two groups. "The first group is on the defensive, defending late stage diagnosis because it is all they know how to make; . . . the second group has a personal feeling of responsibility . . . They are not fatalists and they are not on the defensive."

EARLY TREATMENT OF STRABISMUS

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The purpose of this paper is to emphasize the importance and necessity of treating strabismus early in life. Neglect of these cases is often disastrous to normal binocular vision and a satisfactory cosmetic result. Partial blindness in one eye may also be prevented in many children if they are seen early and properly treated.

The great majority of crossed eyes (strabismus), especially of the convergent or internal type, develop within the first three years of life. They are usually primarily due to an abnormal innervation of the muscles of convergence in children with hyperopia. For the hyperopic, or so-called farsighted person, to see clearly at a distance he must use his muscles of accommodation to correct the error. This is done through the central nervous system by increasing the nerve impulses to the ciliary muscle, which contracts and changes the shape of the crystalline lens and increases its refractive power.

Since the development of arboreal life, and binocular vision, the act of accommodation has been very closely co-ordinated with convergence of the eyes. This is necessary in order that both visual axes may be directed toward an object as it approaches the eyes. The nerve impulses concerned in both acts—accommodation and convergence—have become closely allied into a complicated reflex arc, and any abnormal demand upon one usually influences the other.

Indeed, this is what occurs in the accommodative type of strabismus that is associated with hyperopia and hyperopic astigmatism. Early in life when a child first begins to scrutinize small objects that are near by, the accommodation is called upon. If the refraction of the eye is normal, the balance between it and convergence is in proper relation and both visual axes are directed toward the object. For distance, or infinity, the vision should be distinct with the ciliary muscle and accommodation relaxed. In hyperopia, or hyperopic astigma-

tism, distant objects blur when the ciliary muscle is at rest. In order for such eyes to see clearly in the distance, accommodation is necessary. The visual axes, however, must remain parallel if both eyes are to see the image simultaneously. It is, therefore, quite obvious that in high hyperopic errors, the normal balance between accommodation and convergence cannot exist, and either the eyes must turn in more than they should, or some inhibition of convergence must occur to keep the visual axes parallel or directed toward the object. In the former case, convergent strabismus develops. It is clear that the rational treatment for a squint of this type should first be an attempt to re-establish the normal relation between accommodation and convergence, before an abnormal reflex arc or habit is established. This is accomplished by fully correcting the hyperopia and hyperopic astigmatism. It should be done, when practicable, as soon as the abnormality is detected. If neglected, contracture of the muscles of convergence and stretching and relaxation of the abductor muscles takes place. In addition to this, the vision of the turned eye, in a sense, fails to develop and the condition of amblyopia ex anopsia occurs.

It is a grave mistake to defer treatment in these cases until late childhood because with each additional year the prognosis for improvement by simple measures becomes relatively poorer. Infants a year and a half old do not resent the wearing of lenses when high hyperopic errors are present; in fact, one frequently finds that they seek their glasses immediately on awakening. The greatest objection is not from the child, but from the mother. Which is the more objectionable, a child with crossed eyes or one who is wearing glasses that straighten the eyes and permit the normal development of visual acuity? It is true that the eyes will cross when the glasses are removed; this is because the same imbalance of the accommodation and convergence exists as did before they were prescribed.

Many persons have the impression that an operation is all that is necessary to correct strabismus. They lose sight of the fact that the abnormality is rarely a structural muscular defect or an abnormal insertion of the tendons, but that it is usually primarily the result of faulty innervation. For this reason the refraction must be corrected and glasses worn even though an operation is being contemplated. If an operation is considered one must not be contented with a cosmetic result but should strive to establish the normal relation between accommodation and convergence as well.

To prevent the loss of vision in the squinting, or crossed eye, one must begin treatment before the suppressing of vision has become a habit. If this is not done the retinal elements of the turned eye fail to develop properly and the vision remains poor. Stereoscopic vision in amblyopia ex anopsia is always faulty or may be absent entirely. If no organic defect is present in the retina or brain centers persistent treatment over a long period of time may improve the vision in the defective eye.

There is a class of cases in which convergent strabismus develops in children with slight errors of refraction. The vision is usually acute in both eyes and the squinting is not confined to one eye but alternates. In these cases the faculty of blending or fusing the images of both eyes is either faulty or absent. If it is absent little can be accomplished by any form of treatment, but if the faculty is latent it can occasionally be developed by fusion training. Often the visual axes can be brought into better position by operative procedures and binocular vision established. Early training is paramount in this type of squint if any improvement is to be expected.

Every case of strabismus should be refracted after a cycloplegic has been used before any plan of treatment is suggested. In the majority of cases lenses that fully correct the error should be prescribed and worn at least a year before an operation is considered. If the eyes become straight and binocular vision occurs the wearing of correcting glasses will be all that is necessary.

If, however, this does not take place and all conservative measures fail to correct the squint, operation must be considered.

The opinions of competent ophthalmologists differ regarding the best time to operate. Some feel that nothing, other than refraction, fusion training and other conservative measures should be attempted until the child has passed the age of puberty, while others favor operating early in life. Both schools, however, agree that conservative measures should be tried first, as early in life as is possible.

It is not the purpose of this paper to discuss operative procedures, but rather to call to the attention of the general practitioner and pediatrician the urgent need of insisting on early treatment of strabismus. It is unfortunate that an erroneous opinion prevails regarding the management of these cases. Unfortunately the ophthalmologist occasionally sees persons who have been told by their family physician that it is not necessary to correct the strabismus until after the time of puberty. Such cases usually have lost the vision of one eye and in most instances an operation is all that offers relief from an unsightly deformity and little can be hoped for from a functional standpoint.

Physicians and Public Health Work

There is no escape from the alternative that physicians must either practice public health or permit the formation of another class of healers—the professional public health workers. If physicians exclude public health workers from diagnosing and treating diseases, then they must make provision to examine their patients and prescribe the treatments. Two classes of patients which were neglected a generation ago must now be treated by physicians: (a) The case that is mild or incipient. (b) The community in matters involving health. There can be but one system of scientific medicine—that founded on investigation and experience. There can be but one standard of qualifications to practice medicine—that of the graduate from a first-class medical school. Physicians feel that the interests of the public demand that they alone shall be permitted to diagnose human sickness and prescribe the remedies; and that in emergencies, while first aid should be given by any one, yet a physician should be called as soon as possible.—New York State Journal of Medicine, January, 1928.

Tubercle Bacilli

Finding bacilli in sputum offers conclusive evidence of tuberculosis. A single examination is not enough. Repeated failure to find bacilli does not rule out tuberculosis. Says Bray, "Guinea pigs develop tuberculosis from being inoculated with sputum from patients where numerous microscopic examinations failed to show the bacilli."

"POST-INFLUENZAL DEBILITY"

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During the past ten years, each recurring epidemic of the prevailing respiratory tract infection has left in its wake a group of patients who fail to return to normal health. They continue under the care of the physician, or return later with a group of symptoms of which persistent cough, chest soreness, fatigue, loss of weight and psychic disturbances are most common; all may be present, or one may dominate the picture; and their severity may be sufficient to incapacitate the patient for work, or may amount to only annoyance from lack of previous good health. In some, the antecedent acute attack is so mild as to be overlooked, unless elicited by careful questioning.

These patients receive diagnostic labels of post-influenzal debility, neurasthenia, hyperthyroidism and pulmonary tuberculosis, and occasionally lose their thyroid gland or find their way to tuberculosis sanatoria, usually without relief from either procedure. Their blood pressure is usually low, and large amounts of strychnia, digitalis and glandular products of various kinds are expended in an unavailing effort to raise it permanently.

These symptoms suggest very strongly the presence of a continuing low-grade infection; and frequently careful examination discovers residual pulmonary infections, or an area of focal infection about teeth, tonsils or in one or more of the paranasal sinuses. It is significant that adequate and thorough attention to clearing up such foci often results, with or without other treatment, in clearing up the persistent symptoms. Otherwise, treatment usually concerns itself with various tonics, rest, exercise, autogenous or stock vaccines, sun-baths, massage, electricity of various kinds, perhaps a change of climate, or, with no particular warrant, manifold kinds of glandular therapy. Under these measures, singly or in combination, a majority of patients recover; but there remain not a few in whom the symptoms persist, increase, or recur repeatedly under stress of ordinary life or after a recurrent

acute infection. Among this refractory group, in some no foci of infection which may be attacked can be demonstrated; in others such foci as exist are not deemed worthy of attention by the oto-laryngologist, or adequate treatment of them is refused by the patient; in others, autogenous or stock vaccines give at first excellent subjective improvement, but soon are followed by such severe reaction that their use must be discontinued. The obstinacy with which the symptoms and disability persist, and the ease with which they recur after apparent cessation, in spite of all kinds of therapeutic management, are not only discouraging to the patient and physician, but often exasperate the latter to a diagnosis of neurasthenia and to therapeutic despair.

Based on the conception that these patients carry persistent sources of infection; that the organisms present are of low virulence and perhaps of varying strains in the same patient; that it is possible that local strains differ from those commonly found in commercial vaccines prepared elsewhere; and that a vaccine, representing various local strains so far as possible might be of aid in raising the patients' immunity, one of us (N. A. S.), has carried out a bacteriologic study, and prepared such a vaccine, which has been tested on a small group of patients.

During the winter of 1926-27, bacteriologic study of cultures from sinuses in patients during the acute and declining stages of respiratory tract infections showed a marked predominance of non-haemolytic streptococci, many of which were *S. Viridans*. This organism was therefore used in the present clinical study. The cultures for the vaccines came from several sources. The first was composed of four strains isolated from sputa of patients in the acute stages of such respiratory tract infection. The second was also composed of four strains, three of which were isolated from throats also during the acute stage of such infection; and one from a streptococcus viri-

dans infection of the mucosa of the intestines, apparently secondary also to such an acute respiratory infection.

The sputa used for isolation purposes were washed in sterile saline and particles transferred to glucose broth and blood agar plates. Throat cultures were taken with sterile swabs and inoculations made immediately into glucose broth and blood agar plates. Tiny green producing colonies on blood agar were picked to slants for identification. Growth in glucose broth without the presence of blood and the non-fermentation of inulin were used as criteria for streptococcus viridans. Vaccines were prepared from twenty-four-hour glucose broth cultures which had been centrifugalized, washed and resuspended in normal physiological solution. Standardization was done by the counting chamber method.

Luetscher, 1915, in a study of non-tuberculous infections of the respiratory tract, found that the bronchi and lungs of normal animals were sterile. He also noted that 90 per cent of direct cultures from the larynx of forty-three cases were sterile. But, in acute disease of the lungs, one organism only, either the pneumococcus or the influenza bacillus, was encountered. In chronic conditions, the infection was mixed. According to his findings, streptococci were rarely present in the lungs, but they usually predominated in the nose and throat. There was, moreover, a unity of infection of the respiratory tract. Organisms causing infection of sinuses and larynx were also present in the bronchi and lungs.

Hodge and Cohen, 1922, in a study of chronic, non-tuberculous respiratory infections, found streptococci uniformly present in the sputum. Washed specimens consistently showed streptococcus viridans, as well as haemolytic and nonhaemolytic streptococci.

Although Luetscher found streptococcus rarely present in lung infections, this organism has been isolated in our laboratory several times this winter. Three fatal cases of pneumonia were due to streptococci. Blood cultures from one were positive on several occasions for streptococcus viridans. In the

other two cases, cultures were obtained at autopsy. One showed a pure streptococcus viridans infection of the lungs; while in the other, a mixed infection of haemolytic, non-haemolytic and green producing streptococci was present in the heart blood and lung fluid.

The vaccine thus prepared has been tested therapeutically during the past year on a group of forty-three patients from private practice, whose treatment could be accurately controlled and whose condition could be followed throughout. There are excluded from consideration all patients seen only for diagnosis; those who did not follow treatment and received only one or two doses; hospital and private patients whose subsequent condition is unknown; and those seen so recently that results are undetermined. No attempt to make an accurate bacteriologic study of these patients has been made.

In addition to the use of the vaccine and the clearing up of foci where possible, treatment has included limitation of activity below the fatigue level; fresh air and sun, all as faithfully carried out as possible; adequate, but not forced, feeding; in a few instances regulated sun-baths; in two cases, change of climate with temporary benefit; and the administration of iron, arsenic and strychnia as seemed indicated. With three exceptions patients classified as having an old process have previously followed these measures under good medical supervision for prolonged periods without continuing benefit. The dosage of vaccine used has been small, gradually increased to the production of a definite reaction, and then held slightly below this level, or gradually built up; and has been given at intervals of four to seven, later fourteen, days. In most cases a dilution of 75 million per c.c. and a dosage of .01 to .05 c.c. has been used; in only one case has a dosage of 0.1 c.c. been reached before a definite reaction was caused; and in eight patients it has been necessary to use doses of .01 to .03 c.c. of a 20 million per c.c. dilution to avoid reaction. This decided sensitiveness to the vaccine, and the fact that sharp reactions usually reproduce accurately the clinical symptoms have been

regarded as suggestive evidence of its specificity. Sharp reactions have been regarded as undesirable, and may be followed by protracted exacerbations of symptoms and signs.

The results in this series are shown in tabular form as follows:

Old process with definite improvement		Old process with slight or no improvement		Recent process with apparent cure		Recent process with slight or no improvement	
A	B	A	B	A	B	A	B
13	4	1	7	8	9	0	1

Tabulation of Results

Group A received adequate treatment of all demonstrable foci.
Group B did not present demonstrable foci, or received inadequate treatment of those found.
Duration of six months has been arbitrarily used as the dividing line between a recent and an old process.

The number of patients is too small for final conclusions; but the results are suggestive, and clinically the prompt and marked relief of symptoms, especially in the recent cases, without other change in regime, has occasionally been striking. As might be expected, the results in recent processes are much more satisfactory; but when the many years' duration of some of

Those patients in whom respiratory tract infection was absent, or limited to a few days' coryza, without effect on general health, are recorded as showing improved resistance:

As all patients here considered presented foci of infection in tonsils or sinuses, the importance of treatment of these in prevention of respiratory tract infection is empha-

Apparent improved resistance to respiratory infection		No apparent improved resistance to respiratory infection	
Adequate treatment foci	No adequate treatment foci	Adequate treatment foci	No adequate treatment foci
17	7	0	5

the old processes is considered, and the fact that several were extensive, this improvement, too, is worth while. The great importance of adequate treatment of focal infections is well brought out in the table; clinically this has been striking in certain cases.

Many of the patients in this series gave a history of repeated respiratory tract infections yearly, one or more of which was sufficient to cause cessation of work. As the past winter, locally, has been marked by as great a number of such infections as usual, it is of interest to tabulate their incidence in that portion of this group of patients who gave a history of repeated infections, and whose condition in this respect is known for

sized in this small series; and it is not impossible that the improved resistance shown is to be attributed largely to this factor rather than to the use of the vaccine.

Luetscher, J. A.: Arch. Int. Med., 1915, 16, p. 657.
Hodge, W. R., and Cohen, C.: J. Inf. Dis., 1922, 30, p. 400.

Utah's New Society for Mental Hygiene

The Society for Mental Hygiene recently organized in Utah included in its aims the opening of a state school for feeble-minded children, a psychiatric service for juvenile courts and the industrial school, child-guidance clinics to serve the public schools, special classes in all school districts for mentally retarded children, and education of the public as to modern conceptions of the treatment, control and prevention of mental disorders.—Children's Bureau.

CHOLESTEATOMA OF THE NASAL ACCESSORY SINUSES INVOLVING THE ORBIT, WITH REPORT OF A CASE

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Mr. A. age 40, first presented himself for examination February 9, 1916. He gave a history, of doubtful value, of injury to the right eye twenty years previously. He complained of headache and poor vision of the right eye.

There was extreme exophthalmos of the right eye and the eye ball was much lower than the left. In fact, it looked as if the eye ball were resting on the cheek. There was slight pulsation with many varicose vessels at the outer canthus, suggesting a pulsating exophthalmos.

Vision: V. O. D. 2/60 (metric) and J. No. 14; V. O. S. 6/10-1 (metric) and J. No. 1.

A Roentgen-ray examination, nasal examination, blood Wassermann, complete eye examination, with fields of vision, etc., were all suggested and refused. His mentality was subnormal. His sister volunteered the information that he had always been very peculiar and for a few years previously he had been insane.

The patient was not seen again professionally until June 30, 1919, at which time the exophthalmos had increased; there was rather severe constant pain in the right orbital region, which was steadily increasing; there was keratitis, due to exposure, at the lower corneal margin; all of the media were hazy; the nerve head was pale; transillumination of the eyeball was negative; V. O. D. was 2/60 (metric); there was marked edema of the upper lid with more varicose veins at the outer canthus; and Roentgen-ray examination showed that the frontal, ethmoidal and maxillary sinuses, as well as the orbit on the right, were all cloudy. The general physical examination was negative and the blood Wassermann was negative.

An osteoma seemed the most likely tumor because of its slow growth, although sarcoma was a possibility. Many other tumors such as fibroma, carcinoma, etc., were all thought of, but seemed less probable.

Roentgen-ray Examination: "Growth in region of right frontal, orbit, ethmoid and antrum, probably osteoma."

On July 14, 1919, an exploratory operation was performed by a modified Kroenlin method. As the incision was completed a milky fluid spurted out. When the wound was opened a cholesteatoma approximately 7x5 cm. in size was removed from the orbit and frontal sinus, the floor of the latter being absent. Healing was slow, but uneventful, with only slight exophthalmos remaining. V. O. D. was 1/60 (metric) on September 30, 1919.

I saw Mr. A the third time on December 6, 1927. Occupation, shoemaker. Age 52. I was asked to see him on account of a paraplegia of obscure origin. His paraplegia was immediately relieved by spinal puncture, but he had a spastic, shuffling walk.

The right eye showed a great deal of proptosis, so that it was pushed down and out. The movements of both eyes, however, were quite good.

Vision: V. O. D. 1/60 (metric) which is a little less than 2 per cent. V. O. S. 6/7.5-2 (metric) which is approximately 76 per cent.

Anterior Segment: The anterior segment of each eye was practically normal except for the exophthalmos of O. D. The pupils reacted fairly well to light and accommodation.

Ophthalmoscopy: The left fundus was nega-

tive. There was pallor of the right disc and the veins were dilated. There was corneal astigmatism revealed by the ophthalmoscope, and there were pigment changes about the macula of O. D., which involved the retina and choroid. The optic nerve had suffered from pressure, but at a point posterior to the central vessels of the retina. The right field of vision was very narrow and the left field normal.

Examination of Ears, Nose and Throat: The right and left membranae tympani were negative. He did not give any history of ear trouble. The nasal septum deviated slightly to the left and there was a small polyp wedged between the left middle turbinate and the septum. There was often foul smelling mucopus in the right middle meatus; the right middle turbinate and the right inferior turbinate were quite large. The tonsils were moderately large. The nasopharynx often contained mucopus. The larynx was negative. His teeth were somewhat irregular, with recession of the gums; there were very few fillings. The rim of the right orbit was apparently intact. There was a small sinus discharging foul smelling mucopus just above and behind the right outer canthus at the site of the former incision.

Transillumination: The left frontal sinus was fairly clear and the left maxillary quite clear. The right frontal sinus and the right maxillary were very dark.

Roentgen-ray Examination: The right frontal, ethmoidal and maxillary sinuses were all dull. The other sinuses were clear. The bony orbital roof was eroded posterior to the apex of the orbit with evident exposure of the right frontal lobe.

Diagnosis: 1. A very extensive and large cholesteatomatous mass, involving the right frontal sinus, the right anterior ethmoidal cells, the right maxillary sinus, and the right orbit, with proptosis of the right eye ball. There was erosion of the orbital and frontal plates with exposure of the anterior lobe of the brain on the right side.

A brief review of the literature shows that "about the year 1840, J. Muller described new formations in the temporal bone, resembling pearly growths. They were composed of concentric layers of epidermoid cells with cholesterol crystals between them."

Cholesteatomatous or caseous rhinitis was first described by Duploy and Follin in 1874. "This rare disease seems to be more the result of some associated condition than a process actually involving the nasal mucosa. In the few cases reported, each shows different etiological factors. There is an accumulation in the nasal fossa of a cheesy, gelatinous material, often to the extent of actual displacement of structures and facial deformity. There is associated with it an extremely fetid odor, fouler, if possible, than that occurring in ozena. No special micro-organisms are found except those of decomposition. Microscopically, the material shows fatty cells, granular leukocytes, stearin, and cholesterol crystals. The condition occurs in individuals with a tuberculous tendency, or in those who possibly have been infected with syphilis. In one case reported, the cause was believed to have been a myxomatous growth which had undergone degeneration."

DISCUSSION

Heimendinger says, "cholesteatoma formation may be due to two independent causes: 1. The disturbance in evolution during embryonic life (true cholesteatoma). 2. Encroachment of the epithelium from without into the sinus cavity (false cholesteatoma). The true cholesteatoma exists from birth and is probably a factor in the causation of the subsequent empyema. The false cholesteatoma is always dependent upon, and the product of, the existing sinus suppuration."

We believe we are dealing with a secondary cholesteatoma in this case and that a more extensive operation will likely be re-

quired later. However, the latter must await more hearty cooperation from the patient.

There are several very interesting features in this patient's condition:

1. The fact, as stated in the report, that he has had some type of insanity.
2. He certainly has reformation of an extremely large cholesteatoma.
3. The long duration of the disease.
4. The extensive intracranial involvement, as indicated by his general symptoms and the Roentgen-ray film, without a fatal termination.
5. A neurological examination was advised and refused by the patient.

A BRIEF SUMMARY OF THE ACTIVITIES OF THE MOBILE CLINIC OF THE STATE PSYCHOPATHIC HOSPITAL

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Since 1925, a mobile clinic from the Colorado Psychopathic Hospital has visited 101 communities throughout the state and examined approximately 1,600 cases. Most of these communities have been visited in conjunction with the Traveling Health Clinics organized under the State University Extension Bureau and the Colorado Child Welfare Bureau.

The work of the clinics was largely in the fields of education and preventive medicine. As stated in a previous paper, "A state psychopathic hospital is a community organization that should attempt to be of service to all the localities of the state in furthering early recognition and treatment of mental disorders and defects. A mobile clinic can aid in this program very materially in the following ways: (1) It can establish actual contacts with the community which makes it easier to evaluate the social forces surrounding the individuals who come to the hospital for treatment. (2) It can collect data as to schools, arrangements for recreations, type of vocations and numerous other important factors that contribute to the social welfare and adjustment of patients. (3) It can secure at close range important information as to environ-

mental influences to serve as a basis for the hospital recommendations prior to the patient's discharge. (4) It can bring before each community in a thorough and intimate fashion the aims and purposes of the hospital, matters pertaining to the admission and discharge of patients and information as to current trends in preventive psychiatry. (5) It can form actual contacts with local physicians. (6) It makes possible the neuropsychiatric examination of adults and of children of pre-school age and school age who present behavior and habit training difficulties. (7) It can aid in the establishment in the school of special classes for retarded children whereby their capabilities will be better developed and their social and economic status improved."

The work of the clinic as a whole consists of a complete health examination of the pre-school children and such school children and adults as may be referred by the local community. This includes an examination of the teeth, the eyes, the ears, nose and throat, weighing and measuring to determine the relative state of nutrition and a complete examination to determine if any other physical defects exist. A summary of the developmental history is made and on the basis of

this summary, recommendations in regard to prophylactic measures such as vaccination, toxin-antitoxin, etc., are given. From this group the pediatrician and other clinic workers refer cases to the psychiatrist as the indication arises. In addition to cases referred through the regular clinic channels, cases are also referred by the local physicians, school principals and teachers and court officials for psychiatric examination only.

The scheme of classification used in examining the children referred is the same as that used in the Psychopathic Hospital. The classification groups them under five heads; namely, the reactive behavior or personality defect group, the toxic and organic group, the mental deficiency group, the endocrine group and the psychotic group.

The reactive behavior group includes those children who are showing a maladjustment on the basis of inadequate or poorly developed personality assets, bad environmental surroundings, or both. Emotionally unstable, overactive and underactive types are placed in this group. Friction between members of the immediate family, poor hygienic arrangements, inadequate parental control and faulty understanding of the parental control and faulty understanding fundamental facts of child psychology by the parent are important causal factors. Maladjustment may be evidenced by temper tantrums, failure in school, delinquency of various kinds, numerous habit spasms and ties, asocial or anti-social conduct and many other types of undesirable behavior.

In the organic group are placed those children who are presenting problems on the basis of definite organic disease, such as congenital syphilis, post-encephalitic behavior disorders and various post-traumatic conditions, birth injuries, etc.

The mental deficiency group includes those children in which there is a definite primary reduction of mental capacity and ability, not attributable to any of the organic factors mentioned above.

The varied types of glandular dyscrasia—thyroid, pituitary, etc., with their marked influence on the mental status, comprise a small but definite group.

The psychotic group includes adolescents who may present many features of actual psychoses such as manic-depressive states, schizophrenic reactions, paranoid reactions and constitutional psychopathic inferiority.

During the three years in which the clinics have been active, 12,500 children and adults have been examined. For purposes of comparison these have been divided into two groups of an equal number. This division approximates an equal division in the time factor and in the number of communities visited as well.

	GROUP I		GROUP II	
	Number	Percent	Number	Percent
Reactive Behavior Disorder	242	36	497	59.5
Toxic & Organic Reaction	198	30	117	14.
Mental Defective	78	10	87	10.4
Endocrine	12	1.8	4	.4
Psychotic	11	1.7	37	4.4
Normal	126	19	93	11
Totals	667		835	
GROUP I - Those referred from the first 6250 examined.				
Group II- Those referred from the second 6250 examined.				

Of the first 6,250 cases passing through the clinic, 667 or 10.5 per cent were referred to a psychiatrist. (See Table I.) Of the second 6,250 cases, 835 or 13.4 per cent were referred for psychiatric examination, a gratifying increase. Of the first group, 242 or 36 per cent were classified in the reactive behavior disorder group. Of the second group, 497, or 59.5 per cent were placed in that classification. This also was encouraging since these children in the main represent normal children with remedial personality difficulties providing the remedial measures are begun early. Included in the second group are 93 adults who were examined.

One hundred ninety-eight or 30 per cent of the first group were classified as organic reaction types and only 117, or 14 per cent of the second group. This unusually high incidence, especially in the first group, is attributed to two main factors; first, the large number of birth injuries encountered

due undoubtedly to the absence of an obstetrician or at best the attendance of a midwife; and second, the large number of cases of untreated syphilis. The character of the population in the communities visited as well as the lack of medical facilities in some vicinities made these conditions possible.

Of the mental defective group, 78, or 10 per cent were encountered in the first group and 87, or 10.4 per cent in the second. Of the endocrine group, 12, or 1.8 per cent, were found in the first group, and 4, or .4 per cent, in the second. Eleven children, or 1.7 per cent of the first group, showed definite psychotic tendencies, and 37, or 4.4 per cent, of the second group. Following are a few case histories which are characteristic of the type of problems encountered:

CASE REPORTS

Case I. A girl of 12 was referred because of slow progress in school and stealing. She was brought in by her foster mother who had adopted her when she was 2 years old. She had been adopted while her foster parents were away temporarily from their present home and upon their return she was presented to the community as their own child. It was not long, however, before the true circumstances became known. Nothing was said directly to the parents, though, and they continued in their deception. Nothing unusual was noticed in the child's behavior during her pre-school period. Shortly after she started to school, she questioned her mother in regard to her parentage, relating that some children had told her that she was an adopted child. This was denied by the mother. No marked change occurred for a period of approximately a year following this except that the child became more secretive around home. About a year later, trifles began to disappear from around the home. They were the usual gee-gaws which would attract a child. This continued and finally small amounts of money were disappearing. Observation revealed that this was being used to buy candy which purchased a certain amount of popularity from her companions. These stealing episodes continued with increasing frequency. Moral persuasion failing, corporal punishment was resorted to until she began to run away from home to avoid the punishment. Finally she was confronted with the fact that she was an adopted child and that if her bad behavior continued she would be returned to an orphanage. Thus, after five years of assurance that she was not an adopted child, she was assured with equal fervor that she was, and that such a state held grave possibilities. Needless to say, the confidence of the child was not gained by such a move and the stealing continued unabated with the development of more elaborate means to conceal it.

Examination did not disclose any physical defects. Psychometric examination gave an intelligence quotient of 94. Mental examination revealed marked conflict over the question of adoption with negativism shown to the extent that she denied that she had been adopted. She said she had been told by other children that it was a disgrace to be adopted and moreover these were the only parents she had ever known.

A teacher who had become interested in why the child did things, rather than in what she did, had been able to gain her confidence and to modify her behavior considerably during the past six months. There still remained the barrier, however, that the child did not want the teacher to know that she was adopted. This situation was corrected and with a better understanding established and a modified program outlined, the possibilities for an improved adjustment seemed good. This case was classed as a reactive behavior disorder.

Case II. A girl of 6 years was referred as an active case of chorea. She demonstrated choreiform movements accompanied by excessive fear, stubbornness and loud screaming. Father had died of tuberculosis. Patient had always been in rather poor physical condition and of a slim, tall build. Neighbors would tell her how much she resembled her father and sigh that she, too, would die of tuberculosis. Patient had seen her father in a hemorrhage and would become hysterical whenever it was necessary to cough. Mother was a beauty parlor operator in a small town. Whenever patrons had an opportunity they would discuss patient's physical condition until the mother became unduly alarmed. The mental factor was very evident and patient was referred to the hospital for observation. The choreiform movements stopped, she ate and played normally with the other children and in one month her physician recommended placement in a private home with other children for normal social relations. Mother understands the situation and is making every effort to secure a position in another town as it is quite possible that patient would return to her old habits should she be confronted with sympathizing and terrifying neighbors again.

Case III. A boy of four years was referred because he was unable to talk and did not have normal control of his arms and legs. Patient was a full-term baby, but when three days' old developed jaundice. The five previous children in this family had all developed jaundice shortly after birth and the two immediately preceding the patient had died. With the onset of the jaundice in the patient he was given a blood transfusion. He had several convulsions after this and was critically ill for several days, but survived and seemed all right until the time came when motor development was expected, at which time it was noted that his movements were abnormal. His development since that time has been very retarded.

Examination showed definite athetosis. He showed a fair intellectual development, however, and good trainability. Under a carefully outlined training program he has shown a marked improvement in his motor coordination and his sensorium has shown a like improvement on subsequent visits to the clinic. His disability still exists, but he is developing toward a much improved physical and mental state. He represents the organic reaction type.

Case IV. A boy of 9 years was brought in by his mother because he was bashful and seemed retarded. He had always been delicate, a condition attributed by the mother to the fact that her health had been poor during the pregnancy. He had been slow in his mental and physical development, but had not been taken to a physician. The boy presented the characteristic signs of thyroid deficiency, coarse hair, coarse skin, thick tongue, etc. He was referred to the local physician who placed him on thyroid extract. One year later, when the clinic visited this same community, the boy was examined again. He showed a marked improvement, was making better progress in

school and was adjusting much better in a social way.

The problems presented by the defective children were largely in association with their school work. In one community visited it was found that the fourth and fifth grades were about one-fourth larger than the other grades in school. Psychometric examination disclosed the condition that this increase was due to the fact that there was a large number of pupils who were reaching the limit of their scholastic achievement at these grades and were not being promoted because they were unable to complete their work. Faced constantly with problems that were beyond their comprehension they resorted to misconduct and mischievousness to occupy their time. By making arrangements whereby occupational and mechanical training was provided for these children, the school situation was relieved and the status of the children was considerably improved.

SYNOPSIS OF COLO. PSYCHOPATHIC HOSPITAL TRAVELING CLINIC WORK - MAR. 15, 1928



The relatively high incidence of the number classified as psychotic in the second group was due to the fact that a number of patients who had previously been in the hospital were examined during the clinic visit to their community.

Visits to the same communities on successive years has convinced us of the necessity for the establishment of permanent base clinics located at points throughout the state where they could serve as centers for the surrounding territory. (See Table II.) Problems in a great many instances are problems of social adjustment and as such are best met by an organization that is in touch with local conditions throughout the

year. It has been gratifying to see the results of successive visits to a community, but adequate follow-up can only be effected through a permanent local organization. Such an organization has been developed at Sterling and is functioning very well.

Summary and Conclusions

A resume of the work of a mobile clinic shows a marked increase in the scope of the work undertaken through that agency. It has aided materially in the educational program of the State Psychopathic Hospital and has led to a better understanding of the social forces at work throughout the state and the influence these may have on the production of mental disorders. It has been an excellent agent to carry out the initial program in the work of preventive psychiatry. It has indicated the need of permanent local organizations and contacts made thus far in each community should lead to the development of psychiatric clinic centers.

CULTS DISCREDITED IN TIME OF DISASTER

At a time of great disaster, when there are sick and dying on every hand, the quacks, medical pretenders and drugless sects of every variety stand no show of recognition. Well-educated, adequately trained, and experienced physicians of the regular school are the ones who receive the calls. This was proven recently during the devastating flood in the South. The United States Public Health Service, the Red Cross, and the organized regular profession, through its constituted authorities, did an enormous amount of work in caring for the besieged people. Fifty million grains of quinine were given to flood victims, and nearly a million people received vaccine for typhoid and smallpox. We haven't heard a peep from the drugless therapists and the various antivaccination societies concerning this work done by the Red Cross and the United States Public Health Service in preventing disease. The public deserves to know what was done and what was accomplished by scientific medicine in the great flood regions, so that due appraisal may be made of means and methods employed by those who know as compared to what usually is done by those who do not know. If there is any one thing that should be an object lesson to the lay public it is a recognition of the fact that in time of disaster no one wants the chiropractors, osteopaths, mechanotherapists, Christian Scientists, or anyone else belonging to the horde of medical pretenders that prey like vultures upon the sick and suffering if given an opportunity. In other words, in time of disaster, it is scientific medicine that comes to the front, and no one wants anything else at that time. Why should they want it at any other time?—J. Indiana M. A.

STERILITY—A CONSIDERATION OF ITS CAUSES

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A married couple is not considered sterile until three years have elapsed without offspring. Of all marriages approximately 12 per cent are sterile, few realize the fault is with the husband in 20 to 35 per cent of these.

It is customary to examine the semen from a specimen obtained with a condom; this method gives much valuable evidence but may be subject to error. It is common for the physician to advise the patient to bring the condom to his office in a bottle containing "warm water." Spermatozoa will withstand a certain amount of chilling, but a few degrees of heat above body temperature will kill them. Rarely will an untrained individual properly gage the temperature, so that very often one finds on microscopic examination only dead or slightly motile cells. It is more satisfactory to have the tied condom placed under a warm pillow until it can be brought for examination in a pocket close to the body. A small amount is then removed with a pipette and examined, not on a warmed slide, but on one at room temperature.

A satisfactory specimen shows many motile cells. Some physicians will exonerate the husband if a few are seen. When we realize that with a single ejaculation there are approximately 300,000,000 spermatozoa, and that only one of these enters the ovum, we see in nature the necessity of having an abundant supply so that a few of the most vigorous cells may reach their goal.

Among animals it has been demonstrated that motility is not sufficient to pronounce a specimen satisfactory. Williams and Savage¹ find that in bulls the morphology of the sperm cells constitutes the greatest single source of fitness. They found that no bull which had more than 166 abnormal sperm heads per 1,000 had a good breeding record. Moench² studying specimens from human beings concludes also that morphology is a factor.

An attempt has been made to explain cer-

tain early abortions on the ground of sperm abnormalities. As Mall¹⁰ has shown, about one-third of all abortions show abnormalities of development which are inconsistent with life.

Many pus cells in a condom specimen are distinctly irregular; if associated with absent, dead or feeble spermatozoa, they denote some pathological condition in the male sexual apparatus which may be responsible for the abnormal semen. Pus itself does not interfere with the vitality of the spermatozoa; it is the pathological condition in the genitalia which is responsible for the sterility. A man can at the same time impregnate his wife and infect her with gonorrhea.

An occasional Böttcher crystal is seen in normal semen; if examined after the spermatozoa are dead, they are present in large quantities. A moving fluid does not crystallize or does so slowly, if many crystals are seen in a specimen examined at once, we can decide that the semen is abnormal.

Male specimens are best examined after a period of incontinence. Often frequent intercourse, in the early months of marriage or because of the desire for a child, renders the sperma immature and they lack vitality.

A condom specimen with many motile and uniform cells may not exonerate the husband. Impotence, premature ejaculation, stricture of the urethra whereby the semen does not escape until the penis becomes flaccid, epi or hypospadias, are capable of preventing proper placing of the fluid in the vagina.

Before marriage male specimens may be obtained by milking the seminal vesicles against a full bladder and by massaging the prostate through the rectum. The absence of spermatozoa or their presence in small number may not be significant. As the vesicles collect the sperma under excitement, they may be present at one time and absent at another.

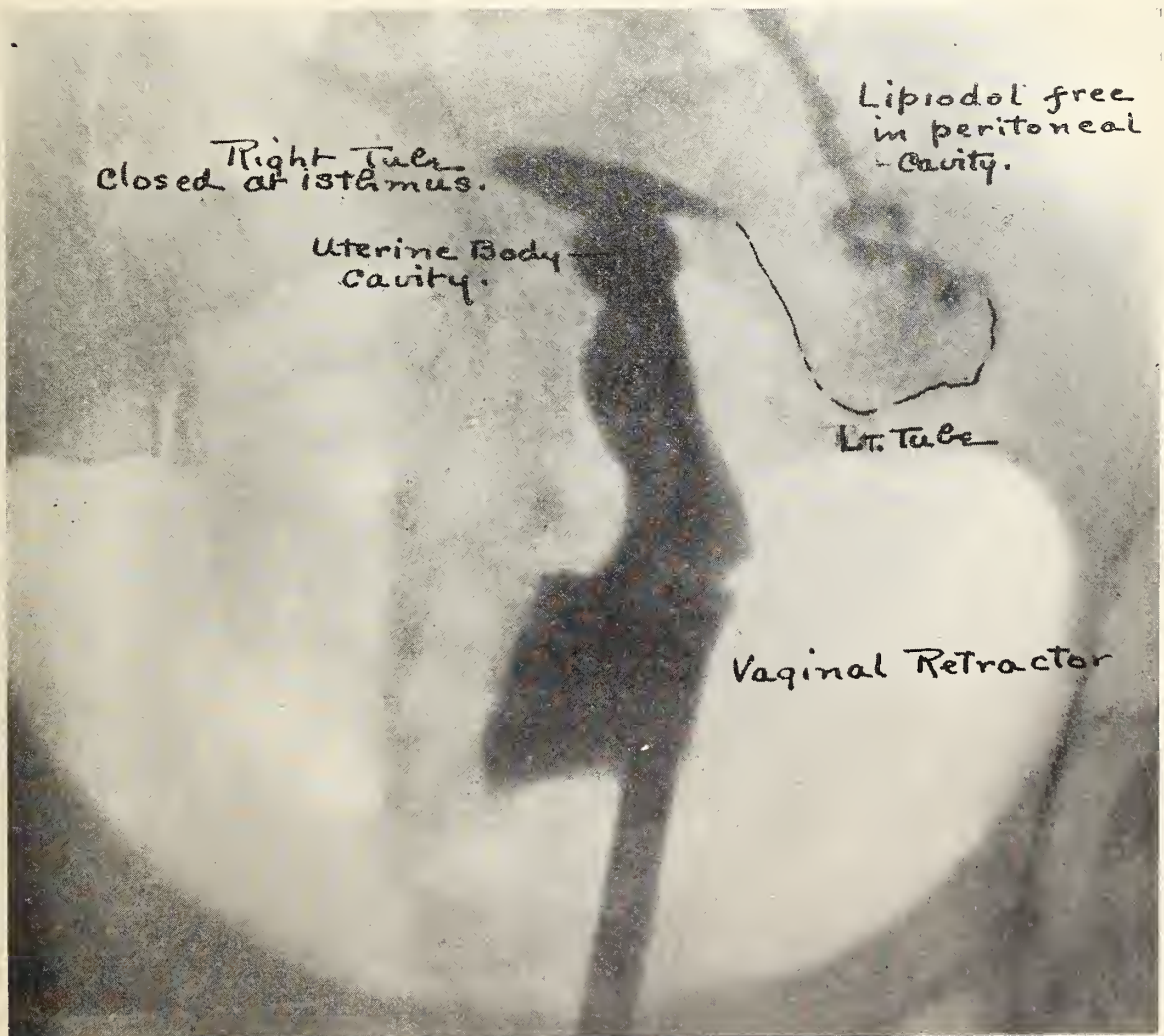
Infinitely more is learned regarding the male elements and the factors concerning

sterility by an aspiration from the cervix shortly after intercourse. Live cells may be obtained from the cervix several days after marital relation.

This means of examination is known as the Hühner test. It gives an idea of the vitality of the male cells in the various secretions of the female genitals. The acidity of the vagina, excepting during pregnancy, rarely exceeds 0.5 per cent lactic acid, in which condition sperms will live for a considerable time. Hyperacidity of the vagina is rarely a cause of sterility. The alkalinity of spermatic fluid would largely overcome this reaction. Weil⁴ has shown that the bene-

ficial effects on sperma by alkalies, as bicarbonate of soda douches, is exerted within narrow limits, and that the change of the hydrogen ion in either direction acts detrimentally.

If live spermatozoa are obtained from the cervix, many theories for sterility may be disregarded; e. g., retroposition of the uterus with the cervix not in the "seminal pool." In reality an uncomplicated retrodisplacement is seldom a bar to pregnancy. Many are relieved by simply a dilation of the cervix or one of the numerous operations on the cervix, such as a Possi or Dudley operation.



The right tube is closed and no lipiodol has passed beyond the interstitial portion, on the left the tube is open and the preparation has passed, flowing into the peritoneal cavity. The shadow through the tube was so faint it was necessary to retouch with ink.

In a report of Hunner³ on 526 private patients treated for sterility, about one-third had a noticeable cervical discharge, of which 24.6 per cent became pregnant after treatment.

Theoretical reasons, such as expulsion of semen from the vagina and various causes attributed to the male, may be eliminated by means of the Hühner test. Though more difficult to obtain from the fundus, if spermatozoa are found, acute antelexions, tenacious mucous plugs of the cervix, and antagonistic chemical secretions may be put aside.

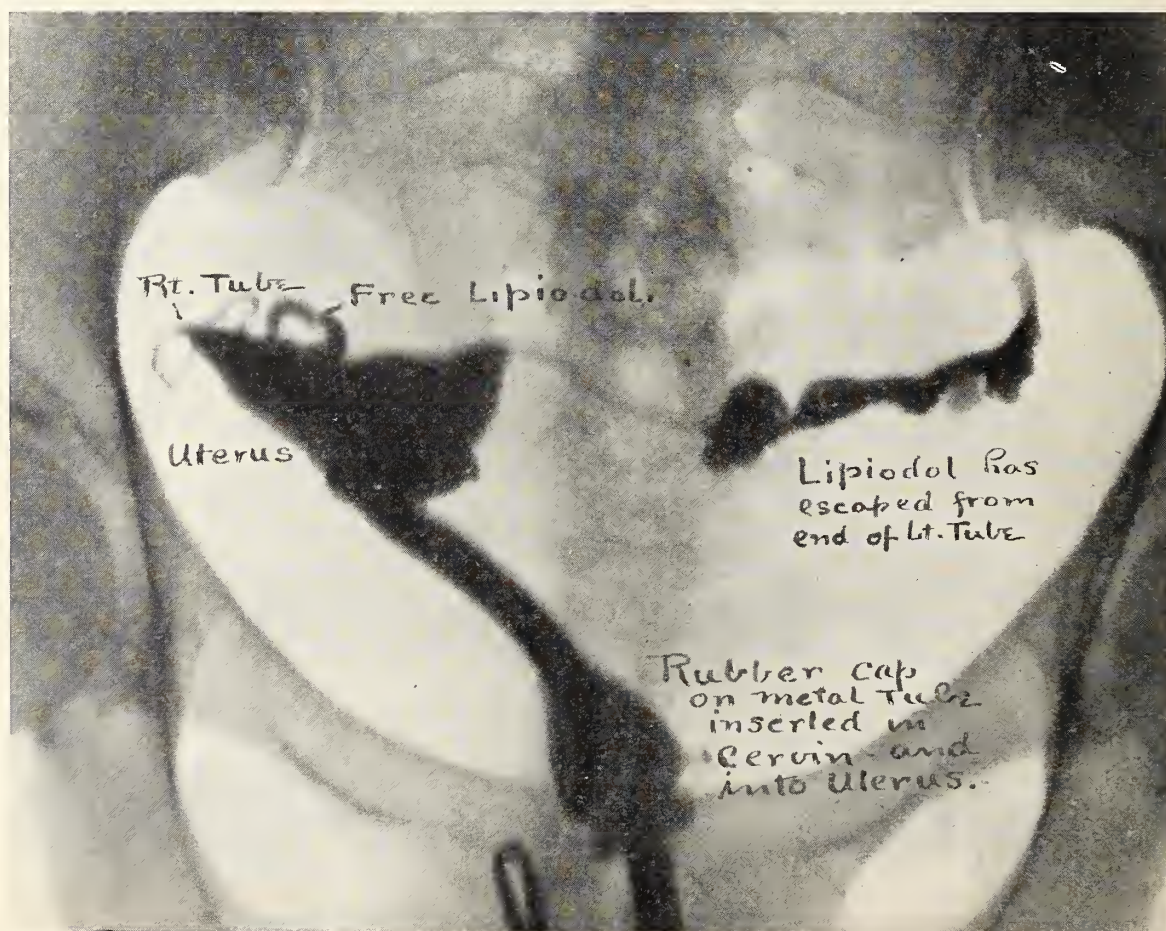
In the female the most common of all causes is closure of the uterine tubes, usually of gonorrheal origin. Rubin⁶ has given us the method of determining this complication. Carbon dioxide, because it is rapidly absorbed, is forced through the cervix and out of the tubes.

The suitable time for the test is four to seven days post menstruation. At this time

the thickness of the endometrium and the secretions are reduced to a minimum. 200 to 220 m.m. Hg. pressure is used. While the insufflation is done for the purpose of diagnosis of closure, occasionally lightly closed tubes become patent and Rubin reports 102 pregnancies, 63 in cases of primary sterility and 39 of relative sterility, after this procedure.

The test is not devoid of danger as death has resulted from gas embolism, a tube may be ruptured, and there have been reported instances of endometrial transplants (Sampson's chocolate cysts) following periuterine insufflation. It is contraindicated when there is any pelvic inflammation, but under proper conditions and when the correct pressure is not exceeded, it is our best means of determining tubal patency.

Because he considers the Rubin test dangerous, Ott⁷ injects an indifferent dye in salt solution into the peritoneal cavity through the abdominal wall or through



Both tubes are patent, and the lipiodol has escaped into the peritoneal cavity. The uterus has been pushed to the right by the instrument.

Douglas pouch. The peristaltic action of the tubes and the ciliated action of the endometrium being toward the cervix, the dye may be observed in the cervix within twenty-four hours, provided the tubes are open.

Recently substances showing in x-ray have been injected through the cervix into the tubes. Sodium bromide was first tried, but because it is capable of producing hyperemia and a few disagreeable reactions have resulted, it has been discarded and the French preparation, Lipiodol, substituted. This is a 40 per cent iodine solution in poppy seed oil. Iodipin, an American preparation of 40 per cent iodine in vegetable oil, has been used by Neuell⁸ and serves satisfactorily. These preparations seem to be non-irritating and are absorbed in the peritoneal cavity, though traces may be seen in some instances as late as sixty days following injection. About 7 c.c. or more, according to the size of the uterus, should go through and visualize the reproductive organs.

Pictures of the tubes may give us an idea of the point of constriction and the probability of success by a plastic operation; yet at best such operations are successful in only a few chosen cases.

According to Bécélère,⁹ under too great pressure lipiodol may enter the circulation and give rise to fat emboli. Using postoperative specimens he caused fat to enter the blood vessels at a pressure of 40 m.m. Hg. He states that a manometer should be attached and the pressure used should not be more than 30 m.m.

Besides those already mentioned, there are numerous other causes for sterility. In Hunner's series one-twelfth had developmental abnormalities; one in twenty had uterine fibroids; of those treated by myomectomy one-third became pregnant. Endocrine disturbances are often a factor and may be associated with underdevelopment. The indiscriminate use of the various glandular extracts is irritational and for the most part unscientific. A certain number of cases show no cause for sterility.

Reynolds and Macomber¹² consider the deficiency of certain chemicals in the blood; namely, calcium, a cause, and in a certain

number of white rats complete sterility has been produced by a diet deficient in vitamins.

Apparently healthy individuals differ widely in reproductive power; a person low in the productive scale may succeed in obtaining offspring when mated with one possessed of high fertility, but when paired with one of average or deficient productive power there is poorer prospect of pregnancy.

The subject of sperma immunity has not been productive of anything definite; e. g., testing spermatozoa with the serum of the female.

It may be seen that the diagnosis of the cause of sterility requires a systematic study of existing conditions. The effects of gonorrheal infection in both the male and female are the outstanding cause. Not long ago the routine treatment was dilation and curettage; that the former was a help there is no doubt, but curettage is to be condemned as it is certainly followed by varying degrees of inflammation which tend to render the endometrium unfit for implantation and nourishment of the ovum. After determining the cause by the tests at our disposal, treatment is directed along definite lines.

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THE BORDERLINE PELVIS

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"To be forewarned is to be forearmed."—

It is a recognized fact that every primapara is to a certain degree an unknown problem as regards the character of her labor. Although the vast majority of cases deliver spontaneously or with a minimum amount of interference, yet there is a small percentage of cases who have a stormy and difficult labor which might have been avoided had these cases been subjected to careful and repeated study and observation during the last weeks of pregnancy.

It is not sufficient to be content with a verbal report of cases from time to time nor with a verbal report plus blood pressure reading and urine analysis. It does not inconvenience the patient nor consume a great deal of the physician's time to make an abdominal inspection and palpitation at each visit. In this way valuable information is obtained as regards the height of the fundus, the presentation and position, anterior or posterior occiput, and at the end of full term the presence or absence of proper engagement. A persistent oblique position often gives a hint as to the possibility of faulty engagement with extension of the head which might be corrected at or before the onset of labor.

The mortality and morbidity in obstetrics is ample evidence that many practitioners accept the care and delivery of obstetrical cases and yet fail to appreciate the importance of taking the pelvic measurements. Again, some rely solely upon external pelvimetry and fail to take the internal measurements and estimate the diameter of the conjugata vera, while many more are unaware of the frequency of the funnel-type pelvis in which the pelvic inlet is ample while the outlet is contracted. The determination of this condition calls for the measurement of the anteroposterior and transverse diameters of the pelvic outlet. With a shortened diameter between the ischial tuberosities and a resulting narrowing of the public arch the perineum is subjected to great danger of trauma at the delivery of the head.

By the universal employment of pelvimetry we are able to determine the type of pelvis and there remains only the estimation of the proportion between the presenting part to the pelvis at the approach of term. Other factors which cannot be foretold are the character and regulation of the uterine contractions and the time at which membranes may rupture. Rupture of membranes in a primapara before or shortly after the advent of labor strongly suggest faulty engagement. We are then confronted with a dry labor and probable prolongation of the first stage with subsequent exhaustion of the patient and uterine inertia. It is in these cases that the Gwathmey method of analgesia often gives good results, affording a period of rest and not materially affecting the progress of labor. It is also unknown how well the head may mold in cases where a moderate disproportion exists between the presenting part and pelvic inlet. Cases presenting an absolute pelvic contraction offer no difficulty as regards the method of procedure. In such cases the conjugata vera is 7.5 centimeters or less and the necessity for cesarean section is apparent. With a conjugata vera over 7.5 centimeters it is important to determine as near as possible the proportion between the head and pelvic inlet. Unfortunately we possess no method of positively determining the size of the fetal head, but several procedures may be carried out to afford a comprehensive estimate of the proportion between head and pelvis.

In the technique suggested by Müller one hand seizes the head above the symphysis pubes grasping the brow and occiput with the tip of fingers and thumb, and pressure is exerted in the axis of the inlet to determine the degree to which the head enters the pelvis. In the method suggested by Kerr a similar procedure is employed with one hand while two fingers of the other in the vagina determines the amount of descent which may occur and with the thumb of the vaginal hand palpation along the anterior border of the symphysis one can determine

the degree of overlapping. Pinard suggests seizing the brow and occiput by the two hands and attempting to move the head from side to side. Where the head is floating this is easily determined; if slightly engaged and well flexed strong downward and backward pressure to bring the head in close contact with promontory is exerted. One then endeavors to depress the fingers of the other hand between the symphysis and the anterior surface of the head. If this is possible no serious disproportion probably exists, but if impossible definite overriding at the symphysis pubes may be determined in which case it is probably impossible for the head to pass through the pelvic inlet, although strong and regular uterine contractions may occur. Williams considers that the true "borderline" pelves are those in which the conjugata vera measures between 7.5 and 9 centimeters. In cases with a conjugata vera between 9 to 10 centimeters spontaneous labor is very probable with good pains, intact membranes and a moderate size head which will readily mold.

In the borderline pelves with moderate disproportion much has been said as regards a moderate trial of labor. Unfortunately it is not always possible to determine what constitutes a reasonable trial at labor, and if possible cesarean section is contemplated, each additional hour of labor materially increases the risk of major interference. Experience has shown that the ideal time for cesarean section is just before or very shortly after the onset of labor. Cases long in labor, especially with ruptured membranes and one or more vaginal examinations are poor risks for cesarean. A procedure which is often overlooked in cases of moderate disproportion, with arrest at the pelvic inlet, is that of placing the patient in Walcher's position during contractions in the second stage. It has been shown that this position somewhat lengthens the anteroposterior diameter of the superior strait and may result in engagement. This position is extremely difficult and painful for the patient to endure for protracted periods, but in many instances of moderate disproportion, it may allow the head to pass the superior strait.

Cases presenting a Baudelocque's diameter (external conjugate) of 18 centimeters or less should suggest to mind the probability of a shortened conjugata vera and demand the estimation of the latter before labor has begun.

Another hint which may be of value in the diagnosis of contracted pelves is the usual or normal relation between the anterior superior spines and crests of the ilium. In many cases of an antecedent rachitic disease the usual difference of 2.5 to 3 centimeters is absent and the two measurements may be nearly the same or that of the crests less than that of the spines. Further study of these cases may reveal a generally contracted rachitic pelvis.

Of recent years some attention has been directed to the use of x-ray in the hope that this would give valuable aid. While the film reveals an idea of the general form of the pelvis, the presentation, position and degree of flexion of the head, yet no accurate estimation of the conjugata vera in relation to the size of the head can be obtained.

Everyone who practices obstetrics must confess that occasionally a retrospective study of a case reveals errors of judgment. Careful and constant observation of the antepartum cases will minimize our faulty judgment and regrets.

Seventy-seven Per Cent of Teachers' Retirements Are Before Age Fifty-five—Lack of Health Examinations Blamed

A record of the ages of 357 New York State public school teachers retired on pension during the past six years because of disability shows that 276 or over 77 per cent were retired before the age of 55, according to Dr. William A. Howe, state medical inspector of schools. Only a small group of 19 (5.3 per cent) retired after they had reached the age of 60. Discussing the report Dr. Howe said:

"These figures clearly indicate that a vast majority of teachers fail in health at a period of their lives when senile changes are as a rule not operative. They impress us with the great loss, much of which by proper health teaching is preventable, that the teaching profession is each year suffering. They still further emphasize the need as well as the opportunity . . . and duty, of systematically aiding teachers to more carefully safeguard their health."—Health News.

The tuberculin test determines infectivity but not necessarily lesions. Its chief value, therefore, is in determining infection in children. However, Homan regards it as a useful aid in adults for, in patients with active tuberculosis, the reaction to tuberculin comes earlier and is usually more marked than in the one with a quiescent lesion.

MALIGNANT DISEASES FREQUENTLY UNRECOGNIZED ON ACCOUNT OF THEIR HIDDEN ORIGINS

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One of the most important factors in the possible cure of a malignant disease is the early detection of the primary growth. When the symptoms of its presence appear early and the site of the growth is such that its malignant nature is detectable by the known diagnostic procedures, favorable results may be obtained by the immediate institution of the most rational form of treatment. The progress which has been made along these lines, in the absence of any known specific diagnostic test and therapeutic agent for malignancy is in a great measure due to the knowledge derived from data obtained by biopsy and necropsy in the clinical and experimental studies of this disease.

Modern therapeutic measures which depend upon the early detection and eradication of the primary growth are of little value, however, when the site of the primary growth is such that the symptoms produced are vague and non-localizing, and careful examinations fail to reveal it. Numerous instances in which the diagnosis of malignancy, and especially of the primary site, is difficult, are to be found in any large series of cases where the final outcome is checked by biopsy or necropsy, even when the cases are observed under what might be regarded as ideal conditions—where all the modern diagnostic facilities are available. Indeed, in such a series will be found many instances in which the diagnosis of malignancy was not made until the necropsy was completed.

In presenting some observations which were made on a fairly large series of cancer cases no new diagnostic measures for the early detection of malignant tumors are to be proposed. The object is merely to recall a few illustrative groups of cases in which the diagnosis of malignancy, and especially of the primary site, was often very difficult; and to point out, where possible, the value of the early use of the commonly known diagnostic procedures in some of the difficult cases. These observations also may

serve to emphasize that while the search continues for the specific etiological factor, the specific diagnostic test and the specific therapeutic remedy, the cooperation of both the laity and the profession in the matter of biopsy and necropsy consents is necessary in order that the profession may acquire more knowledge concerning these cases.

In this brief and informal presentation it is not possible to give detailed case reports. The difficulties encountered were such, however, that in giving only the major clinical aspects and necropsy findings the cases may readily be divided into several distinct groups. The cases in the first group might well be designated as "silent" since the tumors gave no localizing signs or symptoms, and the diagnosis of malignancy was usually made at the necropsy table. In the second group may be placed those cases in which the presence of a malignant tumor was missed because the symptoms produced were attributable to some other chronic disease for which the patient was treated during life. In the next group may be placed the cases presenting benign lesions which frequently become malignant. In the last group are included the cases in which the signs and symptoms of the primary growth did not appear until very late, or its presence was detected only after the appearance of the signs and symptoms caused by the growth of the metastases.

The cases in the first or "silent" group were most commonly found in middle aged or elderly persons whose chief complaints were anorexia, asthenia and loss of weight and who often appeared cachectic. Thorough physical and laboratory examinations failed to reveal any etiological factors for the symptoms. Although there was a strong suspicion of malignancy, clinically, the diagnosis could not be established by any of the known diagnostic methods. In a few instances, the laboratory findings, in addition to confirming the presence of a marked secondary anemia, were suggestive of some ab-

normal type of leukemia, because of the presence of a small percentage of myelocytes in the differential white cell count; or of an atypical form of pernicious or aplastic anemia, because of the profound alterations in the hemoglobin and red cell pictures. Retroperitoneal lymphosarcoma or Hodgkins, carcinoma of the stomach and colon (the non-obstructing types) and hypernephroma were the most common malignant growths which were found at necropsy in the cases of this group. (The alterations in the circulating blood are most likely due to profound disturbances in the bone marrow caused by the toxemia or by undetectable metastatic involvement, or by causes yet unknown.)

The cases in the second group were likewise most commonly found in the later decades of life. In this group the necropsy findings suggested that symptoms caused by the primary growth or its metastases had been present during life and had been ignored, or that their significance had been misinterpreted; and in some cases indicated that the cause of death may have been due to the malignant tumor and its metastases rather than to the pre-existing chronic disease. Such instances were found among necropsies on cases of chronic diseases of the nervous or cardio-vascular-renal systems, of generalized infections, lues and of chronic respiratory diseases, in which the localized distressing symptoms (especially pains) of the primary tumor had been mistakenly regarded as aggravated or atypical manifestations of the chronic disease which is known to sometimes involve those regions, or as local manifestations of the generalized disease, or of the anemic or toxic states. Primary malignant growths of almost any of the internal organs were found in these cases. At times the necropsy disclosed that some of the symptoms may have been caused by metastatic growths, especially in bones, from primary foci elsewhere in the body, and that the pains had been due to pressure upon or involvement of the adjacent nerve trunks. The instances in which primary lung tumors were found are especially noteworthy. Within recent years necropsy records have re-

vealed a marked increase in the frequency with which malignant tumors of the lung are found in what were regarded during life as atypical cases of chronic respiratory infections. Some of these, because of the presence of tubercle bacilli in the sputum were regarded as "atypical" forms of pulmonary tuberculosis.

The difficulties in the early diagnosis of malignancy in the next group of cases were due to the lack of definite criteria for the detection of malignant changes in certain benign lesions. The fact that in this series numerous instances were met in which both the laity and profession had resorted to the use of too long periods of "watchful waiting" as a diagnostic aid in cases for which the only preventive measure of cancer therapy—the complete early eradication of potentially malignant foci—is most successful, warrants the inclusion of cases presenting "precancerous" lesions as a class in which the diagnosis of malignancy was difficult. The term "precancerous" is appropriately applied to those lesions in which statistical studies and common experience have shown malignant changes to occur often. Some of the most common of these are the chronic ulcers and benign tumors of the skin; leukoplakia of the oral mucous membranes (especially luetic), and the chronic irritation lesions in this region due to smoking, carious teeth, et cetera; chronic inflammatory lesions of the breast (chronic interstitial mastitis), cervix, prostate and in the biliary and urinary passages (especially with calculi); and the benign tumors of such organs as the thyroid, breast and intestinal tract (polypi). Whatever inherent difficulties exist in the diagnosis of malignancy in the cases of this class, however, their numbers are rapidly decreasing as the laity learn to consult the physician early about any chronic lesion or group of symptoms; that is, before serious functional disturbances and pain appear; and as both the laity and the profession overcome the unjustifiable reluctance to the biopsy method of diagnosis.

The difficulties in the early diagnosis in the last group of cases may in part be responsible for many of the failures of the

modern methods of therapy in malignant disease. Patients of all ages were found in this group. The diagnosis of malignancy in these cases could often be made only after the primary growth had enlarged to the extent of invading or pressing upon neighboring organs, or only after distant metastases had appeared. Instances of cases in this group are too well known to require repetition. The possibility that their numbers may be reduced is suggested by those instances, which as a class, indicated that some of the failures of early diagnosis might be attributable to delayed or incomplete clinical and laboratory studies of obscure chronic ailments. The following may serve as illustrations: symptoms which were thought to be due to arthritis, sciatica, or "rheumatism," after every other laboratory and clinical test had failed to locate the hidden focus of infection, were ultimately found to have been caused by pressure upon the pelvic nerve trunks by primary tumors in this region, or by metastases in the lower vertebrae or pelvic bones from primary foci elsewhere in the body. The primary growths in the pelvis were often found upon the first **rectal examination** in the male, or the first **digital pelvic examination** in the female. The metastatic bone lesions were often revealed upon the first **roentgenological ex-**

aminations. In others, a routine but complete **physical examination** revealed the primary growths in the breast, thyroid, or lung, and subsequent roentgenological findings showed the metastatic involvement of the bones. In several cases, the presence of **tumor cells in the fluids** from body cavities (pleural, abdominal and pericardial) or in the sputum, due to the involvement of the neighboring organs by primary or metastatic growths was the first clue to the diagnosis, or helped establish the suspected diagnosis of malignancy. Occasionally, the **routine blood examinations** revealed one of the leukemias; and in a few, the presence of atypical cells pointing to profound disturbances in the bone marrow led to the finding of metastatic foci in this organ, or of one of the "silent" tumors—mentioned in the first group.

In summarizing it might be pointed out that when the difficulties of early diagnosis are considered in a manner such as given above, it becomes apparent that a certain number of cases will always be missed because of the lack of a specific diagnostic test for the presence of malignancy in the body. At the same time, however, it becomes evident that in a large number of cases the difficulties of detection of the primary tumor may be overcome by early and complete clinical and laboratory studies.

REPORT OF A CASE OF COCCIDIOIDAL GRANULOMA

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Coccidioidal granuloma is a rare disease caused by the mold *Coccidioides immitis*. We were able to find only 89 case reports in the literature. It has been called the California disease because over 80 per cent of all the cases have apparently arisen there. A few sporadic reports, however, have come from South America and from other sections in the United States. Practically nothing is known about the source of infection in nature and about the mode of transmission to man. Many cases give a history of trauma; however, a few primary respiratory infections have been reported. Insects

may possibly play a role in the transmission. The prognosis is almost universally fatal. A few cases in which an early diagnosis was made have recovered after amputation of the infected extremity.

The disease usually commences as an indolent ulcer with early involvement of the regional lymph nodes. The lesions rarely remain cutaneous and a systemic involvement occurs. Practically every organ in the body may become infected. The clinical picture at this stage resembles systemic tuberculosis. There is an irregular pyrexia, usually considerable cough with expectora-

tion, loss of appetite, strength and weight. Discharging sinuses, draining deep seated suppurating foci, may appear on different parts of the body. As some of these heal, others develop. Pain is not a prominent symptom. Death eventually occurs from exhaustion unless complications arise.

The disease is one of the chronic granulomata. Tubercle like lesions with Langhans' giant cells and caseation necrosis are produced. These resemble the lesions of tuberculosis so closely that they can only be differentiated by the finding of the organism, *Coccidioides immitis*. These bodies are spherical, varying in size from 5-40 micra. They are surrounded by a doubly refractive capsule from 1-4 micra in thickness. The protoplasm is granular or vacuolated and stains blue with the ordinary tissue stains. The organisms may be seen lying free in the granulation tissue or often engulfed in the giant cells. The mycelium is never found in the tissues. Reproduction occurs by endosporulation. The organism becomes larger and numerous daughter spores develop. Eventually they break through the capsule and are discharged into the surrounding tissues.

Differential diagnosis has to be made between this infection, tuberculosis and other mold diseases. The finding of the Koch bacillus would not rule out coccidioidal granuloma, as the two may co-exist. Of the various mold diseases blastomycosis is perhaps the most difficult to differentiate. This infection, also known as the Chicago disease, on account of its prevalence in that region, is chiefly a cutaneous disorder. It is more indolent and responds more readily to treatment. Occasionally, however, blastomycosis becomes systemic and then it runs a clinical course very similar to coccidioidal granuloma. The organism of blastomycosis is somewhat smaller, 7-20 micra, and it reproduces by budding.

The rarity of coccidioidal granuloma and its many obscure features seems to demand a report of all cases and we submit the following:

C. A. T., male, age 54, entered the Colorado General Hospital, August 25, 1926, with the chief complaint of "running sores."

Present illness: Three years ago, while work-

ing with a railroad gang in the Mojave Desert, California, patient developed a "sore" on the skin over the sternum. Subsequently other "sores" appeared which drained at intervals. The lesions have been painless until recently. The patient's condition has become much worse during the past four months.

Family History: No bearing on present illness.

Personal History: Unimportant except that patient had worked in the Mojave Desert, California.

Physical Examination: Patient is a well developed, fairly well nourished man. T. 98.6°; P. 120; R. 18; B. P. 120-80. **Skin** is dry. Discharging lesions, surrounded by areas of erythema, over lumbar region, on left thigh, on posterior right thigh, dorsal surface of left leg, and on lateral surface of right arm. Scars from healed lesions on middle of sternum, on upper left quadrant of abdomen, and on lateral surface of left arm; also crusts of healing lesions above left eye and at angle of left scapula. **Glands** are not involved. **Eyes** regular and equal, react to light and accommodation. **Mouth:** teeth carious, extensive pyorrhea. **Throat:** tonsils large, cryptic, much secretion. **Chest:** somewhat emphysematous, some lagging on left side. Respiration vesicular except over bases where it is bronchovesicular. Few râles over each base. **Heart** within normal limits. Sounds not very good in quality, but no murmurs are heard. **Abdomen:** rather full. No tenderness or rigidity. Liver enlarged three fingers breadth below costal margin. Hard nodule, size of small egg, over McBurney's point. Remainder of physical examination irrelevant.

Laboratory: Urine: normal except occasional hyaline cast. Blood: Hb. 60; Erythrocytes 4,700,000; Leucocytes 11,300; Polymorphs 91; Small lymphs 9. Wassermann negative. Sputum: no acid fast bacilli.

Provisional Diagnosis: Sporotrichosis.

Progress and Treatment:

9-1-26: KI, increasing doses.

9-16: 10 c.c. of 1 per cent mercurochrome intravenously.

9-22: Diagnosis changed to coccidioidal granuloma upon finding *Coccidioides immitis*.

10-15: KI and mercurochrome discontinued. NaI, gr. xv intravenously.

10-31: Condition steadily on decline. NaI discontinued. X-ray ordered. Mercurochrome 1 per cent, 7 c.c. every 2nd day.

11-20: Diarrhea past two days. Checked with bismuth.

11-28: Stool streaked with blood.

12-2: Incontinence of feces for two days. General condition poor.

12-6: Patient very much weaker. Heart rate fast. Pulse of poor quality. Sleeps most of time and is difficult to arouse.

12-7: Patient died at 1:42 p. m.

Chart Record:

T. 96.4—102.4.

P. 85 —160.

R. 18 — 40.

Urine—occasional casts.

Albumin 0-1.

Blood—Hemoglobin 65-57.

R. B. C. 5,070,000—3,380,000.

W. B. C. 10,050—18,600—11,550.

Polys 91—90—95.

Bacteriological Examination

Bacteriological examination was started the first of September, 1926, about one week after the patient was admitted to the hospital. Material for examination was thick,

bloody pus from draining sinuses in the lumbar region. Direct microscopic examination by Gram's stain and methylene-blue showed many pus cells and Gram positive cocci. Initial cultures were made on blood agar, glucose agar, Sabouraud's agar and in glucose broth. After 24 hours' incubation at 37°C. all cultures showed heavy growth of hemolytic staphylococcus aureus.

Specimens from the same lesions were again obtained and before examination were treated with 60 per cent ethyl alcohol for one hour to kill off the staphylococcus and allow the more slowly growing fungus, if present, to appear. The organism could not be demonstrated microscopically in the treated pus. Cultures were again made into glucose broth, glucose agar, blood agar and Sabouraud's agar and kept at room temperature. After four days a few white colonies, one millimeter in width, appeared. All cultures were free from the staphylococcus. The colonies grew rapidly and after eight days were about eight millimeters in diameter. Pure cultures of the mold were later and repeatedly obtained from pus aspirated from freshly opened subcutaneous lesions on the arm.

Cultural Tests

On solid mediums *Coccidioides immitis* grows slowly at room temperature, requiring about four days. At 37°C., however, it appears in two days. It is first seen as a

small white colony with fluffy edges, distinctly penetrating the medium, but grows rapidly and later becomes covered with white aerial hyphae. Growth takes place equally well on plain agar as on the enriched mediums.

Growth in glucose broth is slower, appearing in four days, at 37°C., as a white, fluffy mass of filaments settling to the bottom of the tube. When the tube is shaken the entire mass arises to the top of the liquid. At room temperature milk is digested in two weeks and gelatin liquified in four weeks. Sugars are not acted upon. The organism grows aerobically only.

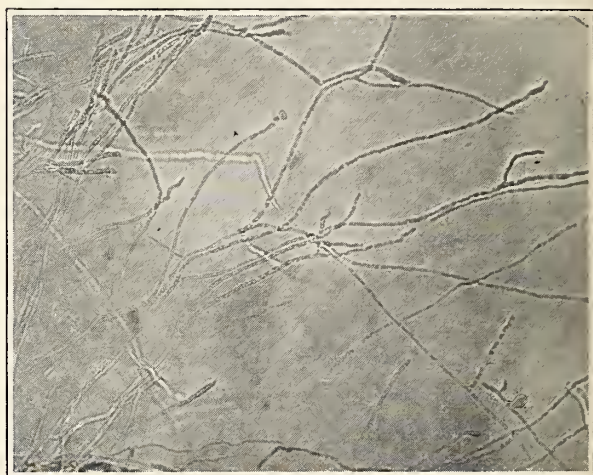


Fig. 2

Low power magnification of *Coccidioides immitis*, five-day culture on plain agar.

Microscopically, the colony on solid mediums shows a mass of filaments, septate and branching. In old cultures, chlamydospores and conidiospores are seen. The organism stains well with ordinary dyes, but is decolorized by Gram's. No budding forms were noted.

Culturally, the organism proved to be *Coccidioides immitis*. *Sporotrichum*, also a disease-producing fungus, simulating the subcutaneous lesions of coccidioidal granuloma, differs from it in gross appearance on solid mediums and in glucose broth. On agar the colonies become raised and wrinkled and darken with age. In glucose broth a pellicle is formed. Microscopically, it appears as a mass of branching septate mycelia, with spores attached by short sterigmata to any part of the hyphae.

The types of spores formed in artificial

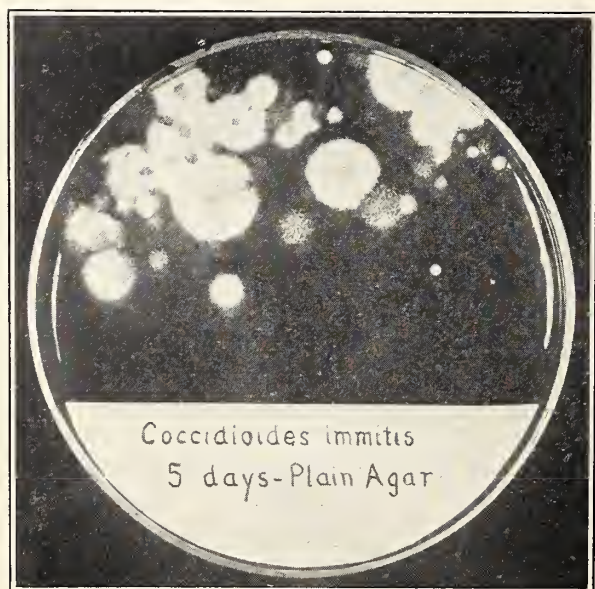


Fig. 1

mediums are typical chlamydospores and conidiospores, and not the budding forms of oidium. Castellani and Chalmers, 1927, have placed the organism under class Ascomycetes, fungi having their spores in asci, family Endomycetaceae, genus *Coccidioides*, Rixford and Gilchrist, 1896, and species *immitis*.

Pathogenicity Tests

Several inoculations of the pure culture were made subcutaneously and intraperitoneally into guinea pigs, but results were negative with one exception. This animal was injected subcutaneously in the groin and after two weeks developed a draining sinus at the point of inoculation. The lesion was completely healed in a month. All the animals were watched for four months, but no other symptoms appeared.

Many authors have found this organism to be pathogenic for dogs, rabbits, monkeys, cats and guinea pigs. The latter appear to be most susceptible. The course of the disease, when produced experimentally, parallels that observed in human cases. The initial lesion usually appears in two to three weeks and the animal may live for several months. Proescher, Ryan and Krueger, 1926, found that the original pus is more virulent than pure cultures and that 70 per cent of the guinea pigs inoculated died. Ahlfeldt, 1926, using pure cultures, was able to infect guinea pigs by rubbing the mold over abraded surfaces of the skin, over the mucous membrane of the nose and throat, and by injection into the trachea.

Serology

No serological tests were made on this case. Cooke, 1915, and Cummins and Saunders, 1916, found complement fixation and skin tests negative, while Davis, 1924, obtained positive results. Cooke, 1915, however, observed a precipitin test positive in 1:160, specific for this disease. Agglutination tests are negative (Cummins and Saunders, 1916), (Davis, 1924).

Autopsy Protocol

Anatomical Diagnosis: Numerous foci of infection caused by *Coccidioides immitis*. Hydrothorax. Amyloid infiltration of liver, spleen, kidneys, adrenals, retroperitoneal lymph glands and intestinal wall. Hemorrhagic colitis.

Gross Findings: External appearance as described in physical examination. The mass in

the wall of the right lower abdominal quadrant contains heavy, greenish pus. No odor noted. **Pleural cavities** contain a large amount of straw colored serous fluid. Numerous adhesions between lungs and chest wall. Lungs crepitate except in scattered areas in the left lower lobe and around the hilum of the right. Numerous ill-defined caseous nodules are scattered throughout the lungs. **Heart** is slightly enlarged. The left ventricular wall is thick and on pressure a purulent discharge escapes from small abscesses. There is a moderate sclerosis of the aorta. **Abdominal cavity** contains no free fluid. The organs are normally disposed. There are a few adhesions in the region of the cecum. **Liver** weighs 2,500 grams. No abscesses are noted.

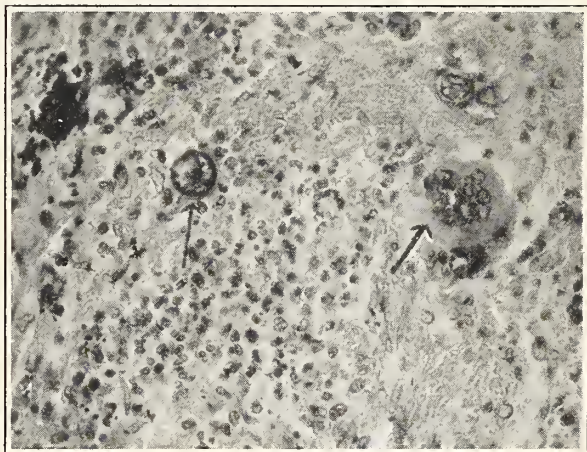


Fig. 3

Coccidioides immitis. Sporulating forms in wall of abdominal abscess. x 400.

Spleen weighs 450 grams. The capsule is thickened. The connective tissue appears increased. **Pancreas** weighs 175 grams and appears practically normal. There are many large retroperitoneal glands attached. **Kidneys** weigh 250 grams each. Cut surface shows evidence of passive congestion. **Adrenals**, right appears normal; left weighs 22 grams, and is very hard on palpation. Section reveals a sclerosed nodule constituting about three-fourths of the organ. **Gastro-intestinal tract** is normal in appearance except for an area of hyperemia in the mucosa of the cecum about the attachment of the appendix. The lower end of the sigmoid shows a marked thickening of

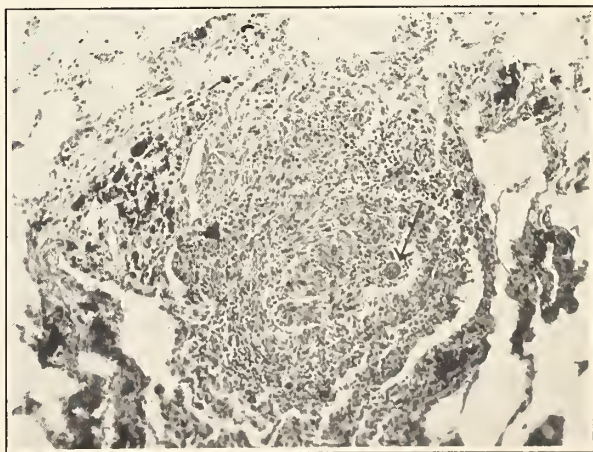


Fig. 4

Coccidioidal granuloma. Tubercle-like lesion in lung. Organism in sporulating form.

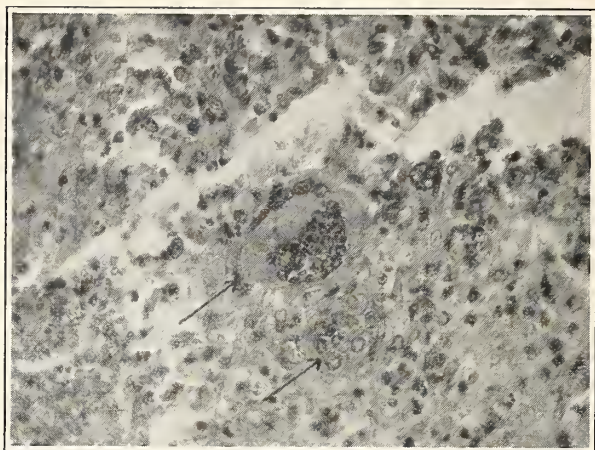


Fig. 5

Coccidioides immitis in lung. Single and sporulating forms. x 400.

the wall and hemorrhage into the mucosa in distinct areas about 5 m.m. in diameter. The wall on section appears thickened and indurated. The fourth left rib near the vertebral column shows a marked softening.

Microscopic Notes: Section from the wall of the abdominal abscess shows some hyaline degeneration of the muscle fibers. There is a thick layer of granulation tissue lining the abscess cavity, with many polymorphonuclears and many giant cells of the Langhans' type and many organisms, some of which are sporulating. Section from the lungs show tubercle formation with giant cells. The inflammatory reaction is mild. The organism is found in large numbers throughout the miliary nodules. Occasionally one is seen engulfed in a giant cell. Several sporulating organisms are noted. Caseation necrosis is noted in some sections. **Heart** sections show no foci of infection. **Liver** sections show small patches of amyloid infiltration. **Spleen** sections show extensive amyloidosis. There are a few small areas of chronic inflammation with tubercle formation. There are many giant cells of the Langhans' type and organism of coccidioidal granuloma. **Pancreas** appears practically normal. **Retroperitoneal glands** show advanced amyloid changes. Numerous foci of the infection are seen. **Kidneys** show a marked hyaline change of the epithelium. The glomeruli show extensive amyloid infiltration. There is some fibrosis of the interstitial tissue with a few foci of infection by *Coccidioides immitis*. **Adrenals** both show marked amyloid change. The left adrenal shows fibrosis with considerable necrosis, tubercle formation and many giant cells. The causative organism is seen in many giant cells and also lying loose in granulation tissue. **Sigmoid** is moderately infiltrated with amyloid. There is considerable hyperemia. The mucosa in small areas is degenerated and replaced by granulation tissue. No foci of infection are found. **Rib section** shows bone necrosis, white cell infiltration and some organisms.

At autopsy cultures were made from abscesses in the left and right pleura and from a subcutaneous lesion over the belly. The fungus was recovered from all. Cultural tests were identical with those of the initial specimens.

Heart blood cultures were negative. Cummins and Saunders, 1916 found negative heart blood cultures from six guinea pigs. However, in some cases, there is an invasion of the blood stream during life. Montenegro, 1925, found positive blood cultures in two cases, and Proescher, Ryan and Krueger, 1926, report positive results in their

case shortly before death.

Discussion

When Posados, 1892, in Buenos Aires, observed the first case of coccidioidal granuloma to be reported, he thought he was dealing with a protozoan infection. He observed in the lesions intracellular bodies similar to the cysts of coccidia. These cysts were surrounded by hyaline capsules and some of the larger forms contained numerous daughter cysts or spores. Later Rixford and Gilchrist, 1896, observed a case in this country and likewise considered it to be caused by an organism resembling coccidia. They therefore called it "*Coccidioides immitis pyogenes*." It was not until 1900 that the exact nature of the infection was known, when Ophuls and Moffitt, 1900, proved it to be a mold. They thought it belonged to the oidium group and gave it the name "*Oidium coccidioides*." Ophuls, 1904, states that Dr. H. D. Moffitt and Dr. May Ash were the first to grow the organism from autopsy material. Ophuls confirmed their work by isolating the mold from guinea pig lesions and showed that no mycelial growth would take place if the parasites were enclosed even in the smallest shreds of tissue or if they had not reached the adult stage.

We have attempted to summarize certain important information from all the available case reports in the accompanying chart. California is no doubt the chief center of infection. Including the present case, which acquired the infection in the Mojave Desert, we find that 75 out of 90 cases originated in that state. The cases reported as arising in other sections are few and far between. However, they may be more numerous than these figures would indicate. The diagnosis of coccidioidal granuloma is difficult and it seems possible that some of the patients in the hospitals for the tuberculous might be afflicted with this disease.

The grave prognosis, according to the chart is also striking with only nine recoveries by amputation. Jacobsen's treatment with the colloidal copper injection and local irrigations with copper sulphate is meeting with success, according to the author, and is certainly well worth trying in all cases that are diagnosed.

REVIEW OF CASE REPORTS

No.	Reported by	Date	Sex	Age	Place	Duration	Status	When Reported
1	Posados and Wernicke	1892	M	?	Buenos Aires	7 yrs.		Died
2	Rixford and Gilchrist	1894	M	40	California	10 yrs.		Died
3	Rixford and Gilchrist	1894	M	33	California	3 mos.		Died
4	Moffitt and Ophuls	1900	M	19	California	3 mos.		Died
5	Montgomery	1900	M	21	California	3 mos.		Died
6	Montgomery, Ryfkogel, Morrow	1905	M	54	California	9 yrs.	Foot amputated.	Well.
7	Gardner and Halton	1904	M	32	California, San Joaquin Valley	?		Died
8	Wolbach	1904	F	?	California, Mexico	3 yrs.		Died
9	Ophuls	1905	M	?	California	?		Died
10	Ophuls	1905	M	?	California	?		Died
11	Ophuls	1905	M	19	California, San Joaquin Valley	4 mos.		Died
12	Ophuls	1905	M	63	California	?		Died
13	Ophuls	1905	M	?	California	?		Died
14	Brown	1907	M	25	California, San Joaquin Valley	14 mos.		Died
15	Brown	1907	M	28	California, San Joaquin Valley	3 yrs.		Died
16	Brown	1907	M	28	California, San Joaquin Valley	?		Died
17	Burroughs, cited by King	1907	M	28	California	14 mos.		Died
18	Brown	1906	M	24	California, San Joaquin Valley	?		Died
19	Evans	1909	M	?	Tennessee, California	?		Died
20	Ryfkogel	1910	M	2	California, San Joaquin Valley	2 yrs.		Died
21	Ryfkogel	1912	M	30	California, San Joaquin Valley	3 mos.		Died
22	Carson and Cummins	1913	M	24	California, San Joaquin Valley	3 mos.		Died
23	Rowles	1912	M	30	California, San Joaquin Valley	1 yr.		Died
24	Brown	1913	M	2	Not given	?		Died
25	Brown	1913	M	30	San Joaquin Valley	?		Died
26	Morris	1913	M	37	Chicago. Never in California	?		Died
27	Chipman	1913	M	28	California, San Joaquin Valley	3 mos.		Died
28	Powers	1914	M	44	Colorado, California	?		Died
29	Roblee	1914	M	18	California	?		Died
30	Cooke	1915	M	25	California, San Joaquin Valley	14 mos.		Died
31	Cooke	1915	M	29	California, San Joaquin Valley	9 mos.		Died
32	Brown and Cummins	1915	M	29	California, San Joaquin Valley	?		Died
33	Brown and Cummins	1915	M	24	California, San Joaquin Valley	8 mos.		Died
34	Brown and Cummins	1915	M	27	California, San Joaquin Valley	3 mos.		Died
35	Dickson	1915	M	?	California	?		Died
36	Dickson	1915	M	?	California	3 yrs.		Died
37	Dickson	1915	M	39	California, San Joaquin Valley	8 mos.		Died
38	Dickson	1915	M	?	California, San Joaquin Valley	?		Died
39	Dickson	1915	M	26	California, San Joaquin Valley	?		Died
40	Dickson	1915	M	?	California, San Joaquin Valley	?		Died
41	Dickson	1915	M	59	California	?		Died
42	Dickson	1915	F	65	California, San Joaquin Valley	?		Died
43	Dickson	1915	M	21	California, San Joaquin Valley	?		Died
44	Lipsitz, Lawson, Fessenden	1916	M	28	Missouri. Never in California	3 mos.		Died
45	Cummins and Saunders	1916	M	41	California, San Joaquin Valley	13 mos.		Died
46	Cummins and Saunders	1916	M	21	California, San Joaquin Valley	?		Died
47	Bowman	1919	M	25	California, southern section	4 mos.		Died
48	Bowman	1919	M	83	California, southern section	?	Foot amputated.	Well after 5 years
49	Bowman	1919	M	54	California. Mexico	1 yr.		Died
50	Bowman	1919	M	28	California, San Joaquin Valley	11 mos.		Died
51	Bowman	1919	M	48	California, Imperial Valley	?		Died
52	Bowman	1919	M	54	California, San Joaquin Valley	9 mos.		Died
53	Helsey	1919	M	32	California, San Joaquin Valley	?		Died
54	Sellan	1919	M	32	Chicago. Never in California	9 yrs.		Died
55	Lynch	1920	F	45	South Carolina. Never in California	?		Died
56	Burkhead	1922	?	?	Kansas. Never in California	?		Died
57	Hirsch	1923	M	27	Chicago. California	?		Died
58	Prnett and Wayson	1923	M	56	California, San Joaquin Valley	?		Died
59	Taylor	1923	M	44	California, southern section	5 mos.		Died
60	Taylor	1923	M	34	California	4 mos.		Died
61	Taylor	1923	M	3	California, southern section	7 mos.		Died
62	Taylor	1923	M	17	California	?		Died
63	Taylor	1923	M	34	California, San Joaquin Valley	4 mos.		Died
64	Taylor	1923	M	?	California	?		Died
65	Taylor	1923	M	37	California, San Joaquin Valley	?	Leg amputated.	Well.
66	Taylor	1923	M	25	California, San Joaquin Valley	6 mos.		Died
67	Taylor	1923	M	23	California	?	Leg amputated.	Well after 1 year
68	Taylor	1923	F	20	California	?		Died
69	Taylor	1923	M	9	California, San Joaquin Valley	4 mos.		Died
70	Taylor	1923	M	8	California	?		Died
71	Hammack and Lacey	1924	M	25	California	4 mos.		Died
72	Hammack and Lacey	1924	M	28	California	1 mo.		Died
73	Hammack and Lacey	1924	F	34	California. New Mexico.	2 yrs.		Died
74	Hammack and Lacey	1924	M	61	California	?	Leg amputated.	In hospital
75	Hammack and Lacey	1924	F	2	California. Texas	?	Arm amputated.	In hospital
76	Hammack and Lacey	1924	M	39	Arizona. Never in California.	14 mos.		Died
77	Hammack and Lacey	1924	F	61	California, southern section	1 yr.		Died
78	Hammack and Lacey	1924	M	53	California, San Joaquin Valley	4 yrs.		Died
79	Hammack and Lacey	1924	F	23	California, southern section	?		Died
80	Hammack and Lacey	1924	M	23	California	?	Amputation.	Well after 5 years
81	Davis	1924	M	33	Chicago. California. Mohave Desert	12 yrs.	Both feet amputated	?
82	Riesman and Ahlfeldt	1925	M	5	Pennsylvania. New Mexico	8 mos.		Died
83	Montenegro	1925	M	?	Brazil	?		Died
84	Montenegro	1925	M	?	Brazil	?		Died
85	Proescher, Ryan, Krueger	1926	M	61	California, Santa Clara Valley	6 mos.		Died
86	Guy and Jacobs	1926	M	36	Pennsylvania. California, southern	?	Tartar emetic and X-ray.	Apparently cured
87	Kelton	1927	M	23	Washington	?	Feet amputated.	Well
88	Jacobson	1927	M	22	California, San Joaquin Valley	?	Colloidal copper.	Apparently cured
89	Jacobson	1927	M	28	California	?	Colloidal copper.	Apparently cured

SUMMARY OF CASES REPORTED

Cases reported from California:		Cases reported from other states:	
Cases originating in San Joaquin Valley	35	Illinois—Two had lived in California	4
Cases originating in other parts of state	11	Colorado—Had been in California	1
Cases with place of origin not mentioned	23	Kansas—Never in California	1
Cases originating outside of California	5	Missouri—Never in California	1
Arizona	1	Pennsylvania—One lived in California, one lived in New Mexico	2
Mexico	2	South Carolina—Never in California	1
New Mexico	1	Tennessee—Had lived in California	1
Texas	1	Washington—Never in California	1
Total	74	Total	12
Cases reported from other countries:			
Argentina	1		
Brazil	2		
Total	3		

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"A BRIEF OUTLINE OF HELIOTHERAPY FROM A SURGICAL STANDPOINT"

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The importance of the use of sunlight as a therapeutic agent in the care of chronic disease, especially of tuberculosis of bones and joints, is now quite universally accepted by the general surgeon as well as the orthopedist.

In view of this fact, and the constantly increasing popularity of heliotherapy in its relationship to disease, a brief review of some of the salient features of this method of treatment seems appropriate at this time.

The specific action of sunlight on deep-seated tuberculous lesions was first emphasized by the Lyons School of Surgeons in France. Their treatment consisted for the most part in exposing the diseased area alone, although some of these teachers recommended general heliotherapy as well.

Since the opening of the first clinic in 1903 by Rollier for the systematic application of the sunbath to the entire surface of the body, the spread of heliotherapy has been rapid, and in our own country numer-

ous clinics are now employing a more or less modified form of this treatment with excellent results.

The use of the sunbath as a therapeutic agent in the care of extra-pulmonary tuberculosis, is based on the recognition of the fact, that tuberculosis, wherever situated, is a general disease presenting local manifestations and, as such, demands treatment directed toward the improvement of the general health. Tuberculosis of bones and joints, therefore, should never be regarded as a local or primary disease. It is invariably secondary to a primary focus, situated elsewhere in the body, most frequently in the lungs or tracheo-bronchial glands.

Rest in bed, fresh air, sunshine, nourishing food and proper hygienic surroundings are the recognized mainstays in the treatment of pulmonary tuberculosis. We recognize the fact that these same reconstructive methods are of equal importance in the care of extra-pulmonary tuberculosis. If, in addi-

tion to these measures, the entire body is gradually exposed to the air and sun, preferably at an altitude, the stimulating effect of this combination is of the greatest therapeutic value.

The action of the sun's rays, however, cannot receive the entire credit for the results obtained in these cases. Rest, fresh air, good food, the establishment and maintenance of immobilization, when indicated, and the correction of deformity when present, are extremely important factors as well. Plaster of Paris dressings, where properly applied, will afford early relief from pain and materially hasten the approach to the quiescent state of an acutely inflamed joint. A well chosen operative surgical procedure, in selected cases, not only shortens the period of hospitalization for the patient, by many months, but assures a much more satisfactory result in many instances.

We feel, therefore, that the orthopedic surgeon should regard heliotherapy as a valuable adjunct to his general treatment of bone and joint tuberculosis, rather than the one outstanding factor responsible for the final cure.

One of the most important features of heliotherapy is the role which it plays in the prevention of disease. We know that the properly conducted sunbath will aid materially in the cure of extensive tuberculous lesions. If this be true, it is reasonable to assume that under the influence of heliotherapy, minute lesions, incapable of producing clinical manifestations of disease, will be cured in a much shorter period of time.

In view of these facts, we should encourage the general practice of sunbathing for children whose physical conditions seem below par and especially for the so-called pretuberculous child. "Where the sun enters, the doctor does not go," an old but wise expression, may well be impressed upon the mind of the layman as well as the physician. Rollier in one of his monographs says, "Sun is indeed the incomparable remedy that foreseeing Nature has placed within the reach of everyone. It behooves us to make the most of it. The human body, being everlastingly threatened at all ages by many causes of impoverishment, must constantly be armed against them. Let it demand of the air and sun, the fundamental elements of hygiene, the resisting forces it is in need of."

We feel that the work and teachings of Rollier should be regarded as a valuable contribution to the treatment of extra-pulmonary tuberculosis, and to the prevention of disease. Heliotherapy has not received the attention which it deserves from the general practitioners and orthopedic surgeons of America, but it is to be hoped that it will be more widely used in the future and its practice encouraged.

We should emphasize the facts, however, that this valuable adjunct to our orthopedic treatment is neither a panacea nor a get-well-quick cure, but let us regard it as a conservative form of treatment which stimulates, rather than supplants, the efforts of Nature to defend the body against disease.

ARSPHENANINE REACTIONS

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In view of the fact that arsphenamine in various forms has now come into almost universal use by physicians for the treatment of syphilis, the possibility of arsenical intoxication should be kept constantly in mind. That this is not done and many incipient cases of arsenical poisoning are overlooked is evidenced by the frequency with

which severe cases of this kind come under observation of the dermatologist. A number of such cases on our service in this hospital being herewith reported.

The reactions occurring from the intravenous or intermuscular injections of arsphenamine or any of its various derivatives may be divided into the following classes.

1. Immediate Reactions.
2. Herxheimer Reactions.
3. Dermatitis Medicamentosa (arsenical.)
4. Hemorrhagic encephalitis.

The immediate reactions occurring either during the injections or shortly after the injection of the drug were seen much more frequently a few years ago than at the present time. The large majority of these reactions are due to improper alkalization of the arsphenamine, the use of water not freshly distilled in making the solution, impurity of the drug, or a "break" at some point in the technique of administration of the drug. The treatment of this type of reaction is the emergency treatment of shock such as lowering the patient's head, injection of epinephrine, etc.

The Herxheimer reaction occurs a few hours after the first injection of the arsenical preparation and occurs in the majority of patients with an acute secondary syphilide. It is due, supposedly, to the liberation of a large amount of toxin by the spirocheticidal action of the drug and manifests itself by local and constitutional symptoms. The local symptoms are either the appearance of a roseola which had not yet appeared or the brightening-up of a secondary eruption which was already present. The constitutional symptoms vary from a slight nausea to a prolonged chill followed by a marked fever. These reactions are the most common arsenical reaction and usually require no particular treatment.

The reactions showing a dermatitis manifest themselves usually following the third, or any subsequent, injection and vary in severity from a slight flushing of the skin of the flexor surfaces accompanied with an intense pruritis, to a condition of marked inflammation of the skin of the entire body with accompanying severe constitutional symptoms such as extreme prostration, chill, fever, jaundice, gastro-intestinal symptoms, etc. This type of reaction requires local treatment to prevent secondary infection of the dermatitis, constitutional treatment as demanded by the symptoms of each particular case, and intravenous and oral administration of a solution of sodium thio-sulphate.

The hemorrhagic encephalitis type of reaction manifests itself early in the treatment (usually during the first course) and presents the clinical picture of an encephalitis. This type of reaction is the most severe, being practically always fatal, but fortunately is of rare occurrence.

Reactions of the first two classes do not contra-indicate further arsenical medication while any of the symptoms of reactions of the two latter types should be very definite danger signals to stop all arsenical preparations.

The three following case reports are all reactions of the third classification:

CASE REPORTS

Case No. 1. Mr. M. P. White, male, 19 years old, came to the outpatient clinic September 30, 1927, complaining of a penile lesion of six weeks' duration. The darkfield examination failed to demonstrate the presence of *Treponema*, but patient gave a history of having been using calomel powder on the lesion.

Physical examination showed a faint generalized roseola (blood positive), and the following treatment was given:

9/30/27—Neoarsphenamine 0.3 gm.

10/ 4/27—Neoarsphenamine 0.6 gm.

10/11/27—Neoarsphenamine 0.6 gm.

Blood Wassermann test taken 9/30/27 gave a 4 plus reaction.

Ten hours after the third injection of neoarsphenamine the patient says he had quite a severe chill followed by a fever and a generalized bright red, "measly" eruption, with intense itching.

He was seen on 10/13/27 at which time he had an acute dermatitis most marked on the flexor surfaces and a marked jaundice of the eyes and the skin. He was given sodium thiosulphate solution by mouth and local applications for the dermatitis. Urine examination showed no albumen, casts, or pus cells.

10/18/27, he was started on a course of intramuscular injections of bismuth salicylate.

Blood Wassermann reaction III.

Subsequently, he has received some neoarsphenamine, starting with very small dosage (0.1 gm.) and gradually increasing the dose up to 0.45 grams with no further evidence of arsenical intoxication.

Case No. 2. Mrs. T. D. White, female, 24 years old, referred from the gynecological department of the out-patient clinic with III plus blood Wassermann. Physical examination revealed no further clinical symptoms of luetic infection. Husband also had a III plus Wassermann reaction.

Patient received the following treatments:

4/12/27—neoarsphenamine 0.3 gms.

4/19/27—neoarsphenamine 0.6 gms. bis. salicylate

4/26/27—neoarsphenamine 0.6 gms. bis. salicylate

5/ 3/27—neoarsphenamine 0.6 gms. bis. salicylate

5/10/27—neoarsphenamine 0.6 gms. bis. salicylate

5/17/27—neoarsphenamine 0.6 gms. bis. salicylate

5/24/27—neoarsphenamine 0.6 gms. bis. salicylate

6/6/27. The patient showed a definite acute dermatitis in the flexor surfaces of the elbows, knees, and inguinal regions. There were many excoriations with oozing and crusting. Urine examination showed no albumen.

She was given a solution of sodium thiosulphate by mouth and local applications for the der-

matitis and two weeks later, 6/20/27, the dermatitis was greatly improved and she was not seen until 7/18/27, when the blood Wassermann was III plus and a course of intermuscular injections of bismuth salicylate was started. Subsequently, she has received only bismuth and mercury and the blood Wassermann is now 1 plus, so it has not been thought advisable to give even small doses of neoarsphenamine in this case.

Case No. 3. Mrs. R. R. White, female, 35 years old, came to out-patient clinic because her 13-year-old son was losing his eye-sight. The son was found to have congenital syphilis with alopecia and interstitial keratitis and was placed on anti-luetic therapy.

The mother was also started on anti-luetic therapy, in spite of a negative blood Wassermann reaction, and received the following treatments:

- 3/14/27—Neoarsphenamine 0.3
- 3/21/27—Neoarsphenamine 0.3
- 3/28/27—Neoarsphenamine 0.6
- 4/4/27—Neoarsphenamine 0.6 bis. 1 c.c.
- 4/11/27—Neoarsphenamine 0.6 bis. 1 c.c.
- 4/18/27—Neoarsphenamine 0.6 bis. 1 c.c.
- 4/21/27—Neoarsphenamine 0.6 bis. 1 c.c.
- 4/28/27—Neoarsphenamine bis. 1 c.c.

4/30/27, which was twelve days after the last neoarsphenamine injection, the patient noticed some itching followed by the appearance of a red

eruption of the face and arms. The following day there was marked swelling of the face and the eruption had spread to the entire surface of the body with intense redness, swelling, itching and burning. This was a typical case of the exfoliative type of arsenical dermatitis, and the patient received daily intervenous injections of sodium thiosulphate solution until 5/10/27, when she was admitted to the hospital where she received the thiosulphate injections twice daily for 9 days with local treatment for the dermatitis.

She made an uneventful recovery after practically complete desquamation of the epidermis of the entire body and was discharged from the hospital 5/26/27. Repeated unrynalyses showed no evidence of any renal irritation and the blood Wassermann has remained negative.

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BRODIE'S ABSCESS

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Sir Benjamin Brodie was surgeon to St. George's Hospital, and, on November 19, 1845, he delivered a lecture on Abscess of the Tibia, which is reported in the London Medical Gazette for 1845.

He said: "In the year 1824 I was consulted by a young man, 24 years of age, under the following circumstances: There was considerable enlargement of the lower end of the tibia, but the ankle-joint admitted of every motion and was apparently sound. The skin was thin, tense and closely adherent to the periosteum. There was constant pain in the part, generally of a moderate character, but every now and then it became excruciating, keeping the patient awake at night and confining him to the house for many successive days. It made his life miserable and his nervous system irritable; one effect of which was that it spoiled his temper, and thus produced another set of symptoms in addition to those which were the direct consequences of the local malady. The disease had been going on for twelve years. He had consulted a number of surgeons respecting it, and had used a vast variety of remedies, but had never derived

benefit from anything that was done. Instead of getting better, he every year became so much worse. I tried some remedies without any advantage, and at last recommended that he should lose the limb. Mr. Travers saw him with me and agreed with this opinion. Amputation was performed, and the amputated tibia is now on the table.

About two years after the occurrence of this case I was consulted by another patient, 23 years of age, who had an enlargement of the upper end of the tibia extending to some distance below the knee. He suffered a great deal of pain, the part was very tender, and there were all the symptoms of chronic periostitis. I made an incision over the part, dividing everything down to the bone, and found the periosteum very much thickened. There was a new deposit of bone under the periosteum softer than the bone of original formation. This operation, as in the cases of periostitis, relieved the tension and the pain, and the patient was supposed to be cured.

However, about a year afterwards, in August, 1827, there was a recurrence of the pain; the enlargement of the tibia, which

had in some degree subsided, returned, and it continued to increase. In the enlarged tibia there was one spot a little below the knee where there was exceeding tenderness on pressure. I need not describe the symptoms more particularly; it is sufficient to say that they bore a very close resemblance to those in the last case; the only difference being that, as the disease had been of shorter duration, the pain was less severe, and that the tibia was affected in the upper instead of the lower extremity. I concluded that there must be an abscess in the center of the bone, and applied the trephine to the tender spot. I used the common trephine made for injuries of the head, which, having a projecting rim or shoulder, would only penetrate to a certain depth. However, it enabled me to remove a piece of bone of sufficient thickness to expose the cancellous structure. Then with a chisel I removed some more of the bone. Presently there was a flow of pus in such quantity as completely to fill the opening made by the trephine and the chisel."

He then gave details of similar cases, and proceeded to give the method of arriving at a correct diagnosis. He said: "When the tibia is enlarged from a deposit of bone externally, when there is excessive pain, such as may be supposed to depend on extreme tension, the pain being aggravated at intervals, and these symptoms continue and become aggravated, not yield to medicines or other treatment that may be had recourse to—then you may reasonably suspect the existence of abscess in the center of the bone. You are not to suppose that there is no abscess because the pain is not constant; on the contrary, it very often comes on only at intervals, and, in one of the cases which I have related, there was, as I then mentioned, an actual intermission of seven or eight months. After the disease has lasted a certain number of years, indeed the pain never entirely subsides, but still it varies, and there are periods of abatement and of exacerbation."

Brodie's Abscess

This is a chronic abscess in a long bone. It is most common in the tibia, and in its

upper extremity. It may occur in the lower end of the tibia as in Brodie's first case. It may occur in the shaft of the bone as in one of Thomson's cases and in this there were two distinct abscesses in different stages of development. But, this involvement of the shaft is rare. It usually occurs in the cancellous bone and in the central axis.

It is usually due to the staphylococcus aureus, but other organisms may be the cause, viz., staphylococcus albus, staphylococcus hemolyticus, streptococcus hemolyticus, typhoid B, and then usually associated with the staphylococcus. DaCosta has stated it may be primarily due to tuberculosis with a secondary staphylococcus infection. But this view is not generally accepted. Non-virulent staphylococcus may be responsible, and the condition may follow long after a staphylococcus osteomyelitis. Thomson is the authority for the statement that this is the history in about 84 per cent of cases of Brodie's abscess. An abscess may follow a slight injury which provides an area of lowered resistance. Bacteria lodge in the bone and multiply, bone rarefaction leads to the formation of a cavity and suppuration occurs. The surrounding bone thickens along with the periosteum, and the medullary canal becomes obliterated with sclerotic bone. The abscess is prone to break through the cortex, but it may break into the joint. If the lesion is in the lower extremity of the femur, it is more apt to break into the joint than when it is in the upper end of the tibia.

The abscess may appear in a bone that has not been involved in a previous osteomyelitis as in one of Thomson's cases in which the osteomyelitis involved the left femur, and, a Brodie's abscess developed later in the right tibia.

The chief symptom is usually boring pain, worse at night and aggravated by motion, and pressure and the dependent position. Fever may be present and sweats sometimes occur. There is usually a slight increase in the leucocyte count. The pain may be intermittent, and, may be absent for many days or months. In one of Brodie's cases it was absent for seven or eight months. Ten-

derness is marked. If the head of the tibia or the great trochanter is the seat of the disease percussion over the region is painful. There is more or less loss of function, and, the patient may be quite lame and is prone to believe the pain is in the joint. In advanced cases the bone is thickened, and, an abscess in the soft parts adjacent to the disease may be discovered. In about one-third of the cases the symptoms develop between the ages of twenty-one and twenty-seven years. The latent period when the abscess is quiescent may be from one to sixty years. Involvement of an adjacent joint is not an uncommon complication.

In Thomson's cases the location of the disease is as follows:

Tibia, upper end	63	
Tibia, lower end	42	
Tibia, upper and lower ends	1	
Tibia, middle third	2	
Tibia, level not stated	11	
	—	119
Femur lower end	18	
Humerus	18	
Radius	4	
Ulna	2	
	—	161

In making the diagnosis the following diseases may be considered: acute inflammatory rheumatism, gonorrhoeal rheumatism, infective arthritis, sarcoma, myeloma, bone cyst, syphilitic periostitis, tuberculosis, and osteitis.

The treatment is operative. Brodie's first case was treated by amputation, and his others by exploration and drainage.

CASE REPORT

L. E. G., 13 years of age, admitted Colorado General Hospital, March, 1928. Chief complaint: swelling right knee, discharging sore above right internal malleolus.

The present illness began in January, 1927, with severe throbbing pain in the right knee. About a week later there was severe pain with swelling in the lower end of the right tibia, and, this progressed till about four months previous to his admission to hospital when it rapidly became worse and a week later there was a discharge of pus above the internal malleolus.

Four weeks before entering the hospital a swelling developed about the right angle of the mandible.

The family history showed his father died at 30 with heart disease; the mother is living and well; and no history of tuberculosis. The past history showed he had measles at 5 years of age and scarlet fever at 9.

The examination showed he was a poorly developed child and undernourished; a superficial abscess at the right ankle of the mandible, the right knee is swollen with loss of function in extension and flexion with no sign of abscess in this region; the right ankle and lower end of the



leg is swollen and edematous, and 11 cm. above the tip of the internal malleolus is a small sinus discharging pus; no pain on active and passive movements of the ankle.

The x-ray examination shows swelling in the soft tissues about the knee; the joint surfaces are smooth and the joint space is increased; the epiphyseal line is negative; there is decalcification of the tarsus; just above the epiphyseal line in the lower end of the tibia there is an area of bone destruction, 2 cm. in diameter; there is periosteal proliferation on the lower end of the tibia in area of bone destruction and slight proliferation on the lower end of the fibula; the chest shows probable pulmonary tuberculosis. The laboratory findings are: urine, negative; RBC, 4,850,000, WBC 14,000, polymorphnuclears 75, small lymphocytes 23, endothelials 2, Hb. 52, phosphorus 3.04, calcium 10.6, Wassermann negative, culture from the sinus-hemolytic staphylococcus.

The temperature since he entered the hospital has ranged from 98.6 to 100.4

The diagnosis is Brodie's Abscess (Ch. Foc. Osteomyelitis).

The operation on March 23rd consisted of an incision on the inner aspect of the lower third of the tibia through thickened and inflammatory tissue and markedly thickened periosteum and newly formed softened bone, and then chiselling out the bone overlying the abscess cavity and removing a sequestrum, 1.8x1.8 cm.; then smoothing out the abscess cavity and packing this with vaseline gauze; the abscess about the lower third of the fibula was then opened, considerable pus evacuated, and found to connect with the inflammatory tissue about the tibia. Through and through drainage was established.

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HEMIPLEGIA OF VASCULAR ORIGIN, WITH THROMBUS OF THE CENTRAL RETINAL ARTERY

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Vascular hemiplegia is probably the most common neurological state encountered in hospital wards. The concomitant associated arteriosclerosis is an equally frequent observation. Occasionally an hemiplegia is encountered which is a departure from the conventional clinical type in that it presents unusual clinical manifestations, such as the case which forms the basis of this clinical report. An added interest is attached to the otherwise atypical hemiplegia in that the central artery of the retina of the right eye was completely obstructed by a thrombus.

The history and clinical findings follow:

C. P. Aged, 61. Married and occupied as vegetable huckster. His residence is Fort Collins, Colo. Was born in Germany and has been in Colorado since 1872, having come for other reasons than his health.

His family history is interesting in that his mother died of carcinoma of the uterus and the father of an abdominal tumor. A sister had septicemia, and a brother two years his senior, who is stated to have been excessively alcoholic, had been paralyzed in both legs for five years. Two sisters are in good health.

Previous History: Patient is the second born and has no knowledge of any difficulties in his earlier life other than measles, mumps, diphtheria and whooping cough, without sequels. No sickness since childhood is admitted.

A gonorrheal infection was contracted, from which he recovered without after effects. A chancre is denied and he never has been submitted to treatment because of syphilitic infection.

Habits have been moderate and limited to the drinking of some beer, intoxication being admitted upon one or two occasions only.

He has suffered no serious accidents and has never been unconscious from any cause.

Present History: About a month ago, he noticed sudden momentary loss of vision in the right eye; this occurred every two or three days, becoming more frequent until three spells were noted the day before permanent blindness occurred. At times return of vision seemed to be hastened by rubbing or massaging the eye. Everything looked blue—"like a bunch of blue flowers" which would gradually fade away and usual visual clarity was restored. No pain. The visual disturbance never exceeded two minutes in duration.

On March 6, 1928, while driving to Denver, and after two transitory attacks, a third occurred from which he has not recovered, and blindness has since been complete, including loss of perception of light.

About the same time as the eye first attracted attention, he began to notice numbness on the outer (ulnar) side of the left hand. No headache and no vomiting. There has been no twitching.

About two days after admission to hospital the left arm began to lose power, beginning in fore-

arm and hand, and extended gradually to shoulder. The hand "felt stiff" and began to jerk (illustrates forcible flexion of variable force). A day or two later the mouth jerked on the left side and has continued to do so at intervals since, with gradual loss of muscular power on the left side of the face. Twitching was noticed around the left eye on the last night or two. No loss of consciousness at any time.

There was no twitching in the left leg but a marked loss of power has come on. "Can't lift my leg up." No numbness in the leg.

No urinary retention or disturbance in control. Nocturia once or twice.

A "lump," not painful, has been noticed in the left hypochondrium at different times during the past four months.

Chief complaint at present is the blindness of the right eye and loss of power of the left forearm and leg. No difficulty in swallowing, except that fluids run out of left side of mouth.

He is certain that he had several times noticed double vision. No headache. No vomiting. No pain and no numbness.

Appetite good. No distress. Bowels usually regular, constipated last two or three days (occasional senna tea). Sleep, good; restful. No dreaming.

Examination, March 18, 1928: The patient is a sparely developed male, about 5 feet 4 inches, weighing 111 pounds (usually 130), fully conscious, lying in bed on account of loss of motion throughout the left side. Replies are responsive with good articulate speech, slightly modified because of left facial paralysis. No lingual defect.

Brow is wrinkled more on the right side. Both eyes are closed but right decidedly more firmly than left. Mouth is retracted only to right voluntarily; very feeble motion to left on emotion. Tongue is protruded in the middle line and lateral movement shows no difference in power on the two sides. No wasting and no tremor. The soft palate moves slightly more to the right side on phonation.

The left arm, forearm and hand are powerless with slight flexor spasticity. Passive motion shows plastic hypertonus in the flexor group; the extensors are free from plastic tonus characters on passive movements. The diminution of power is less noticeable in the left leg than in the arm and seems evenly distributed in the leg, thigh and foot. There is increased tone of the hyper-synergic type to a lessened extent in the left leg. The movements of the right leg are free and unimpaired.

Reflexes: Knee jerk; R. present; L. increased. There is a reduplication in the patellar response on the left side. Ankle Clonus, R. absent; L. present and of short duration, limited to from six to ten contractions upon firm dorso-flexion. Tendo Achilles, R. present; L. increased. Tapping the tendon is followed by reduplication and occasionally by short clonus. Deep reflexes of the forearm, R. present; L. increased. Supinator jerk, R. present; L. increased. Biceps, triceps and deltoid reflexes are increased on the left side.

Superficial Reflexes: Plantar, R. present and flexor; L. present and promptly extensor. Oppenheim, R. flexion; L. prompt extension. Compression of Calf. (Gordon), R. slight flexion; L.

prompt extension. Cremasteric, R. slight or absent; L. slight or absent. Lower abdominal, R. slight; L. absent. Upper abdominal, R. slight; L. absent. Epigastric, R. slight. Ciliospinal, R. slight; L. present.

Special Senses: General sense perception: Tactile, present except in the extreme distal portions of the left extremity where it is slightly diminished. Prompt and localized elsewhere throughout. Pain is prompt throughout. Temperature (heat and cold) are promptly recognized in all areas.

Eyes: External ocular movements are present in all directions except convergence, whence the right eye fails to converge with its fellow. In extreme rotation both eyes are well sustained in conjugate fixation and there is no nystagmus. Pupils: R. 3 m.m., L. 2.5 m.m., left is slightly irregular in outline. The right pupil fails in response to light and shade. The left responds somewhat sluggishly but fairly well sustained. Consensual reaction upon stimulation of the right eye is lost; upon stimulation of the left eye is present. The reaction of the left to distance is retained, and lost in the right. Optic Fundi: R. mediae clear. Fundus quite pale. Nerve is markedly atrophic, slightly blurred in outline, no retraction. Vessels are collapsed throughout the nerve head and retina. Nutrient capillaries cannot be seen. The left eye shows considerable sclerosis in the fundus vessels. Nerve is fairly well outlined and the capillaries are evident. Vision: O. D. no light perception; O. S. good to rough testing in all essentials.

Hearing (voice) good. Watch is heard at three inches. Tuning fork is heard best in the closed ear. Aerial conduction greater than bone in either ear.

Taste is generally diminished, slow in appreciation.

Smell is present but retarded.

Blood Pressure: 125/72.

Urine: Quantity adequate; reaction acid; specific gravity, 1030; albumin, none; sugar, none; acetone, none; indican, none; casts, none; cells, none.

Blood Examination: Hemoglobin, 58 per cent; erythrocytes, 4,500,000; leucocytes, 3,850; (polymorphonuclears, 87 per cent; small lymphocytes, 12 per cent; eosinophiles, 1 per cent).

Spinal fluid, Wassermann; Negative. Sugar, 82; protein, 30; cells, 5.

Wassermann (Serum), negative.

Teeth include several infected members with definite pyorrhea. Temperature during hospitalization was subnormal with pulse range between 70 and 84.

Comments

Aside from the ocular complication, the spasticity and clonic twitching of the left side of the face and the left hand, occurring *pari passu* with the weakness, might suggest a subcortical localization. With such an interpretation, however, the twitching might be expected to follow the usual rule, eventuating in a hemilateral clonus, or a generalized convulsion, and be followed by more or less transitory weakness conforming to the well-known Jacksonian type. The flaccid weakness common to such attacks was absent, and replaced by plastic hypertonus

with a cumulative type of reflex. All toe reflexes are extensor in type, including the Gordon.

The external ocular musculature presents anomalous changes. Conjugate deviation is present in all directions, and especially prompt are the associated, lateral movements of the eyes, while in convergence the right eye fails. The latter may be reasoned to proceed from the failure of vision of the right eye, but should this interpretation be valid, it should be operative in conjugate movements as well. The disturbance of convergent action of the one internal rectus on attempted near fixation and not on conjugate lateral movement may be a point in evidence of cortical center for convergence.

Finally, the distribution of the atheroma being in very large degree or preponderatingly cerebral, while the skeletal vessels shows only moderate involvement, is interesting.

The case is viewed as resulting from vascular occlusion with the damaging influence localized in the cerebral peduncle of the right side below the internal capsule and above the pons. Intermittent claudication of the vessel prior to occlusion is a strong probability as an explanation of the clonic spasms as well as the intermittent blindness prior to complete obstruction.

Increase in Diabetes Deathrate in 1928

The mortality from diabetes continues to increase—very slightly among the whites, but pronouncedly among the negroes. The conclusion that little benefit has as yet come to the urban negro as the result of the discovery of insulin, is inescapable. Insured, that is, urban negroes not only show a sharply increasing diabetes deathrate, but their rate is now higher than that of the whites. Ten and fifteen years ago the contrary was true. In the general population, the diabetes deathrate among negroes has always been very much lower than for the whites.

The combined deathrate for the three principal degenerative diseases ran much higher than in the first quarter of 1927.—Metropolitan Life Insurance Company.

Chicago Municipal Sanitarium Addition

The Municipal Tuberculosis Sanitarium of Chicago has opened a new 225-bed addition. The first two floors consist of single rooms for treatment of cases needing special treatment, such as pneumothorax and thorocoplasty. The third floor which has been decorated with friezes illustrating nursery tales is for the care of children. There is also a large solarium for the treatment of gland and open tuberculosis.—Bulletin National Tuberculosis Association.

OCCURRENCE OF RABIES IN DENVER

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Rabies has existed for centuries since its symptoms were recognized and described in the earliest available writings, which indicate that it was known as a distinct clinical entity in these early times. Fear was displayed toward this disease then, as it is now, and the term "mad dog" evidently aroused the same emotions.¹

Essentially a disease of the canine family, it may, however, be manifest in any warm-blooded animal, to which it is almost always transmitted by the bite of an afflicted animal, usually a dog. The domestic dog is the common source of the disease in the human being.

It is strange that a disease as widespread as rabies and which shows periods of epidemicity should spread with relative slowness. Prior to 1900 rabies was virtually unknown in the West, but since that time there has been a gradual increase, until recently it has practically become epidemic here, as in many other areas of the United States.

Much confusion exists in the minds of both the laity and many medical men about rabies. But few have come in contact with rabid animals, and related descriptions of such animals often become distorted. It is also surprising that confusion is found among some of the veterinarians.

Statements have been made in the past by various individuals that either rabies does not exist, or that it has not occurred in Colorado. Basis for the latter statement may be due to the confusion which exists in the clinical picture of the disease. Only a small per cent of rabid dogs ever display the furious or maniacal form, the majority suffer from the dumb or paralytic type throughout the entire course of the disease. It is possible that many dogs die of this latter form of the disease unrecognized. The statement that rabies does not exist needs no comment in the light of the scientific work which has been done on this subject.

A statistical study of this disease from the standpoint of the animal as well as hu-

man beings has been undertaken by various writers. A very recent article by Rice and Beatty,² in which statistics international in scope were sought, described very well the difficulties encountered in such an investigation. In Colorado rabies is listed as a reportable disease by law, and all afflicted animals should be reported to the proper health authorities. Statistics that are available only concern the human being. Naturally the same condition prevails in Denver. This lack of statistics makes it impossible to state definitely that rabies is even existent, and any fluctuations in the number of animals afflicted yearly is left largely to hearsay, and the imagination. Opinions expressed by several veterinarians and public health men are to the effect that there has been a definite increase in the incidence of this disease in Denver and its vicinity, in common with the reported increase elsewhere. However, no human cases have been reported to the health authorities in the past two years. But constantly recurring reports are heard of the death of live stock and domestic animals, following an attack by a roaming rabid dog. While rabies is potentially a danger to the human being, it is actually causing economic loss to farmers, stock growers and owners of valuable dogs at the present time.

Literature of this disease as existent in Colorado is very scarce. A fairly intensive search has only shown articles by Axtell³ and Peebles.⁴ Nothing has been published in late years, therefore these cases are reported as evidence that rabies has recently existed in Denver.

In the study of the following cases the animals were observed during life. In no case was contact with another rabid dog or animal determined. But two of the three dogs lived near the edge of the city, and consequently would have been liable to meet any afflicted animal from the surrounding country, where rabid dogs had previously been reported.

Following the death of the animals the

brain was removed, the body cavities explored, the stomach opened, and contents examined. While the clinical symptoms were contrary to the usual manifestations of poisons, these were excluded.

Impression smears were made from the hippocampus major and cerebellum of the brain. These were stained by the method as described in Todd and Sanford⁵ for Negri bodies. Negri in 1903 described pleomorphic bodies which he found only within ganglion cells, especially in the hippocampus major, medulla and cerebellum; or extracellular. These bodies have since been named for him, and when found in brain smears or sections are considered almost universally as diagnostic of rabies. They are best found in smears made just after the animal has succumbed to the disease. Animals killed at the onset of the disease, or brain tissue which has begun to disintegrate may not demonstrate these bodies.

Animal inoculation is used as a measure of last resort; to verify the existence of rabies if Negri bodies are found; or to show the presence or absence of the virus if the bodies are not found. But animal inoculation requires a minimum of three to four weeks before any diagnosis can be made.

The procedure followed in this series was to inject a rabbit subdurally with an emulsion of the hippocampus major, cerebellum and medulla of the dog's brain. Obviously aseptic precautions were observed. From eighteen to twenty-five days is usually required for the development of dumb rabies in the rabbit injected with street virus, as described. These rabbits after death were autopsied, brain smears stained to demonstrate Negri bodies, and in some cases other animals inoculated. The demonstration of Negri bodies in the brain tissue, and the production of rabies in the rabbit injected with such tissue is proof of the existence of the disease in the original animal.

CASE REPORTS

Case 1. (Courtesy of Drs. Hermann and Harrison.) Full grown female St. Bernard. Owner lived near Elitch's Gardens. Dog first seen on February 11, 1928. Marked paresis, especially of the hind quarters, which had come on two days before, and had gradually grown worse. Remained on haunches unless forcibly dragged to its feet. Lower jaw dropped constantly, and ropy saliva drooled out, smearing jowls. Unable to

swallow, and had a low, mournful, monotonous howl. Died during the early hours of the following morning. The autopsy was normal except for the mass of straw, hair and debris found in the stomach, which is indicative of the abnormal appetite rabid dogs often display. Smears from the brain (hippocampus major, and cerebellum) showed a few Negri bodies. Two rabbits injected subdurally with brain emulsion died of dumb rabies on the twentieth and twenty-fourth days. These rabbits showed Negri bodies in brain smears. The third series of rabbits have died of experimental rabies, also two roosters which showed characteristic symptoms of dumb rabies.

Case 2. (Courtesy of Drs. Hermann and Harrison.) Airdale, male, 8 years old; owner ran a small store near one of the Denver high schools, and the dog mingled with the large number of students who congregated there during recess times. The first symptoms were noted February 8, 1928, with difficulty in swallowing. When seen on February 11, the dog was restless, had definite paresis of the hind quarters, wobbly gait, lower jaw dropped, some slobbering, tongue dry and dark, typical "bone in throat" appearance. Stomach had been washed out by Dr. Hermann, but found empty. Did not appear to hear, although sense of sight and smell seemed present. Could not drink, but seemed to relish water poured down its throat. Weakness and paralysis gradually progressed until death on February 15th. Negri bodies were found in large numbers in brain smears. Two rabbits injected subdurally with brain emulsion died on the sixteenth and twenty-eighth days of typical dumb rabies. The brains of both rabbits showed Negri bodies.

Case 3. (Courtesy of Drs. Woodliffe and Pratt.) Small cross-breed shepherd type black male, weight about 25 pounds. Owner lived near the east edge of Denver. The dog first showed symptoms two days before seen, February 23, 1928. At that time it was weak and quite restless, but did not resist handling. The next morning the lower jaw had dropped, ropy saliva was smeared over its jowls, and weakness was much more marked, also restlessness. It had two transitory convulsive seizures, during which it hit the top of the cage. Death occurred the same afternoon. Brain smears showed a few Negri bodies. Two rabbits developed typical experimental rabies in nineteen and twenty-two days, and both these animals showed Negri bodies in brain smears.

In none of the three cases had human beings or animals been bitten, so far as was known. The first animal was a case of dumb rabies. The second and third animals showed a transitory picture of the furious type. The potential danger which was present in the case of the second animal while it was with the high school students, is obvious. In all three cases residence of the animal in Denver was established, the clinical picture during life observed, Negri bodies were found in the brain smears, and the injected rabbits all developed experimental rabies, and Negri bodies were again found in their brain tissue. The strain from the first dog is now in the fourth transfer in rabbits.

Comments

1. Rabies exists in Denver.
2. Statistics for rabies in animals do not exist for Colorado, but should be collected.
3. The public should be educated to regard rabies as a reportable disease, and at the present time to consider all sick dogs as suspicious, the animal to be isolated for observation if possible, otherwise destroyed.

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OCCULT RHEUMATISM

CLOUGH T. BURNETT, M.D.,

Department of Medicine, University of Colorado School of Medicine,
DENVER

During the spring of 1927, H. P. (C. G. H. No. 4152), an orderly employed in the Colorado General Hospital, was admitted as a patient in the hospital for a few days because of slight malaise, cough, and elevation of temperature, occurring thirteen days after a tonsillectomy under ether anaesthesia. During the period of observation the only sign noted was the presence of a small broncho-pneumonic patch under each scapula, observed only three or four days. At no time was there any clinical evidence of extension of the infection to other tissues. The man was kept in bed with difficulty for what seemed a proper period of convalescence, and returned to duty in about ten days. At the time of the tonsillectomy the heart was observed to be normal. During the acute infection a transient systolic murmur, not transmitted, appeared at the apex. The rhythm was regular throughout, but on the eighth day and after three days of normal temperature he was found to have a pulse rate of 50 and was referred for electrocardiographic investigation. The only abnormalities noted were an increase in the P-R intervals, these varying from .36 to 1.00 seconds (normal not over .2 seconds). (See Fig. 1, 5-26-27.) The murmur noted formerly had disappeared and there were no symptoms referable to the heart. Electrocardiograms were taken several times during the next two weeks showing P-R intervals varying from .18 to .48 seconds. The last, taken eight days after the first (see 6-3-27), showed a return almost to normal.

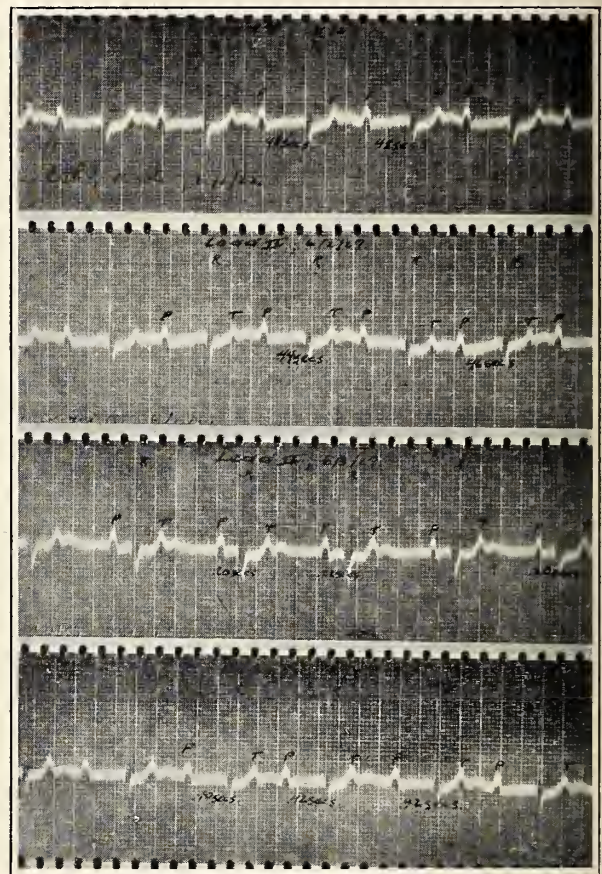


Fig. 1. Occult Rheumatism

There were no symptoms and the patient was discharged.

Because of the evidence of transient block this case was observed for a period of about five months, during which time the patient was subjected to repeated physical and electrocardiographic examinations. To our surprise we found that the return to normal noted on June 3, 1927, was only temporary, and that he showed varying degrees of block until November 25, 1927. Since this date

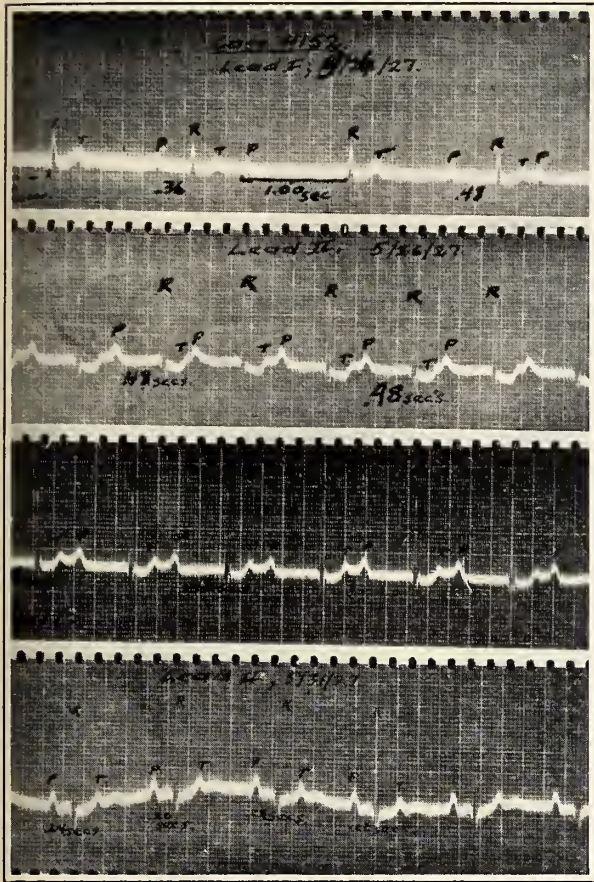


Fig. 3. Occult Rheumatism

all evidence of block has disappeared. A record made February 18, 1928, was entirely normal.

This case appears somewhat unique in that a severe heart disturbance appeared after what seemed, at the time, a very mild infection, unaccompanied by any constant signs of carditis or joint involvement, and yet it is strongly suggested that this represents a case of "occult rheumatism," if one may use the term sometimes applied to obscure and usually undiagnosed forms of tuberculosis.

Several authors have recently called attention to the importance of lung infections in rheumatism. Rabinowitz (J. M. A., 1926, Vol. LXXXVII, 142) writes of a rheumatic pneumonia. Boas (A. H. J. II, 4, p. 375) calls attention to this site of infection in rheumatism and states that as early as 1845, an Englishman, Latham, in a monograph on Diseases of the Heart, had found "a frequent coincidence of pulmonary inflammation with inflammation of the heart in patients with acute rheumatism." While Boas is in doubt as to the exact role played by the virus of

rheumatism in lung infections, he is quite certain there is some connection between broncho-pneumonia and various forms of rheumatism and carditis (in the same patient and in epidemic ward infections, more especially with children).

The existence of rheumatic fever or rheumatism without any joint involvement is coming into general recognition. The earliest and perhaps the only signs may be cardiac, and of these not infrequently electrocardiographic evidence of heart block, prolonged P-R interval or complete absence of the QRST complex indicative of auriculo-ventricular block, may be the earliest and at times the sole evidence of cardiac involvement. Rothchild, Sachs and Libman (A. H. J. II, 4, p. 356) and Willius and Keith (A. H. J. II, 3, 255) recently emphasized this and Dr. Stewart R. Roberts of Atlanta, speaking before the Colorado State Medical Society in September, 1927, especially stressed the possibility that **rheumatism may always start with a carditis** and it is purely a matter of chance whether joint involvement will occur or be recognized.

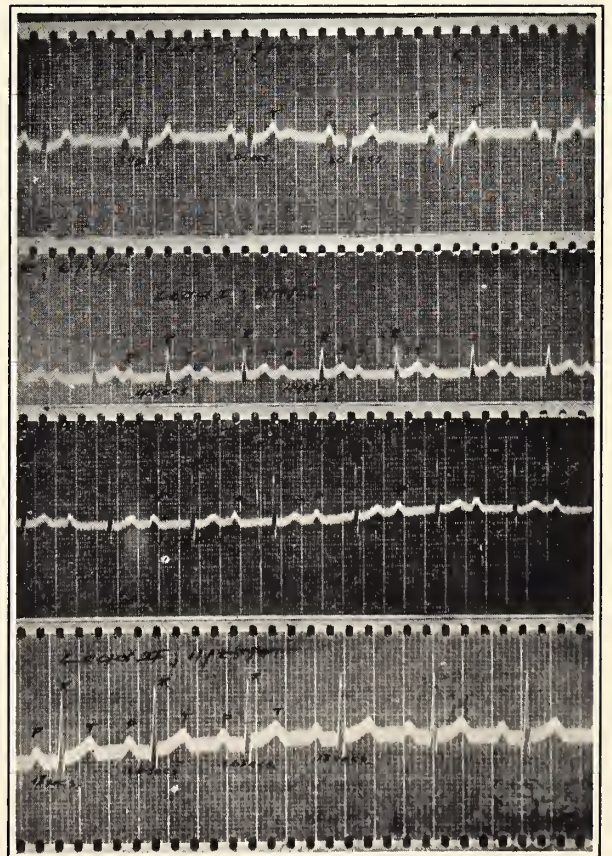


Fig. 3. Occult Rheumatism

It seems desirable to stress the point that rheumatism is protean in its manifestations, with a great variety of symptoms. At one time symptoms may come from the upper or lower respiratory tract, again they may be choreic in character, and not infrequently mainly or purely cardiac. Of these manifestations of rheumatism a simple broncho-pneumonia may at first be the sole demonstrable lesion, and yet, later, severe cardiac changes may be found. Under these conditions any evidence of disturbance in cardiac rhythm which occurs following a simple broncho-pneumonia should arouse suspicion and warrants careful investigation by the electrocardiographic method accurately to determine its cause.

BOOK REVIEWS

A Text-Book of Pathology. By Alfred Stengel, M.D., Sc.D., Professor of Medicine, University of Pennsylvania, and Herbert Fox, M.D., Professor of Comparative Pathology, and Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Eighth Edition, Reset. Octavo of 1,138 pages with 552 text illustrations, many in colors, and 18 colored plates. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, \$10.00 net.

The new eighth edition of this standard work on Pathology has been thoroughly revised and entirely reset. It follows the earlier editions in the general arrangement of topics and is divided into two sections dealing with general and special pathology. The various subjects are treated in a terse and conservative manner and the accompanying illustrations—over 550—are well chosen and add much to the text. A short but satisfactory account of tularemia is given (p. 333). The volume contains over 1,100 pages, but it is well printed on a thin paper which keeps it from being bulky and unwieldy.

WM. W. WILLIAMS.

Asthma, Its Diagnosis and Treatment. By William S. Thomas, M.D., Associate Attending Physician in Immunology, St. Luke's Hospital, New York. Twenty Illustrations in Black and White and Six in Color. Paul B. Boeber, Inc., New York, 1928. Price, \$7.50.

It has been a great pleasure to review this carefully written and interesting book. The paper, the type, and the illustrations are above criticism. There are fourteen pages of carefully chosen references.

The book is written for the internist and not for the specialist in immunology. The statements regarding mooted questions are clear and eminently fair.

The Chapter, Case History Taking, gives a good notion of the pains-taking methods pursued by the author in his study of the cases.

In the chapter, Palliative Treatment, this statement is made regarding ephedrine which hardly agrees with the average experience. "In this kind

of work, I should be reluctant to exchange it (ephedrine) for any other palliative remedy."

On page 78, the following statement is made: "Codeine, although having the advantage over morphine in not being a habit-forming drug," etc. This statement is certainly not in accord with the experience of the profession and is, to say the least, dangerous.

Although to those who have been following the literature, there is nothing new in this book, the method of presentation, and the enthusiasm of the author make it a worthy companion of many of the better known works on special subjects in our library.

The chapter, Autogenous Vaccines in Bacterial Asthma, is given in such an enthusiastic and thorough fashion, that almost anyone would be encouraged to again attempt treatment by this method.

The book demonstrates beyond question the value of the protein tests, and their application in the treatment of asthma. It is a fine criticism of the half-hearted, futile attempts that are being made by the majority of practitioners in carrying out this type of work.

A look of this character demonstrates that success in the treatment of asthma comes only to those whose technique in the protein tests is impeccable and to those only, who are willing to give the most assiduous attention to the minutest details in the patient's history.

A. S. TAUSSIG.

The Spring Time of Physic

Laurance D. Redway, M.D., is the ophthalmic surgeon New York Central Railroad.

Attending ophthalmologist Northern Westchester Hospital, Mount Kisco, N. Y.; Westchester County Hospital, N. Y.; Ossining Hospital, Ossining, N. Y.; Tarrytown Hospital, Tarrytown, N. Y.; Sing Sing Prison, Ossining, N. Y.

Consulting ophthalmologist New York State Reformatory for Women, Bedford Hills, N. Y.; Blythedale Home, Hawthorne, N. Y. Printed by Free Press Printing Company, Burlington, Vt.

During his leisure he has indulged his fancy by sketching medical beginnings in a lighter vein. For one desiring to spend an idle hour without mental effort this small volume is recommended.

B. A. F.

Fewer School Children in France as Result of War

Recently published statistics of elementary education and illiteracy in France indicate a large numerical decline in the generation born during the years of the war. Only 3,500,000 children were reported in the elementary schools of today in comparison with 5,500,000 in 1913.—Children's Bureau.

A young Scotch emigrant was brought before the magistrate of a Nova Scotia court, charged with having deserted his work on a certain farm without giving due notice to his employer. When asked what he had to say in his defense, he replied, "Weel, they gied me nout but brakeshaw to eat." Brakeshaw, it may be explained, is the flesh of animals which have died a natural death.

"What has that to do with the case?" asked the magistrate.

"Weel, it was this way. Ye ken, the auld coo deed an' we ate it, the auld steg (gander) deed an' we ate it, the auld soo (sow) deed an' we ate it, the auld bubbling jock (gobbler) deed an' we ate it. Then the auld woman deed—an' I left."

NEWS NOTES

Dr. Herman Schwatt was appointed as medical director and superintendent of the Sanatorium of the Jewish Consumptives' Relief Society at Sanatorium, Colo., and assumed his duties on Feb. 20, 1928. Dr. Schwatt was formerly medical director of the above institution for a period of five and one-half years until 1916, and also of the Workmen's Circle Sanatorium, Liberty, New York, for two years. Since then he has practiced in New York City as specialist in tuberculosis. He was associated in the capacity of attending physician with the Montefiore Hospital for Chronic Diseases and Bedford Sanatorium, Bedford Hills, New York, and with several other well-known eastern institutions and sanatoriums.

Dr. and Mrs. C. Howard Darrow of Denver have returned from a gulf cruise, including points of interest in Cuba and adjoining islands. They also included visits to several cities of the Atlantic coast.

Dr. Walter A. Jayne has returned after spending several weeks in Honolulu.

Dr. Atwater Douglass has returned to Denver after a trip to his old home in Maine.

Dr. C. H. Platz, formerly of Casper, Wyo., plans to open an office for the practice of medicine in Fort Collins, beginning on or about July 1. Dr. Platz has been very active in the Wyoming State Society, having been president of that organization during the year 1926 and 1927.

THE GOITER CONFERENCE

The program committee of the American Association for the Study of Goiter has very generously furnished every member of the Colorado State Medical Society with an invitation program of the annual meeting to be held in the assembly room of the Denver City and County Medical Society, June 18, 19, 20, 1928. The program committee has been fortunate in securing some of the leading goiter students of America to present clinics and papers. In addition to this the association will have several distinguished foreign guests who will participate in the scientific program. It has already been announced that Professor Dr. B. Breitner of the von Eiselsberg Clinic, Vienna, and Professor Dr. Albert Kocher of Berne, Switzerland, will give addresses. More recently the committee has been able to announce the attendance and participation of the following additional distinguished guests; Professor Dr. William Jaensch of the von Bergmann Clinic, Berlin, under Professor and Director of the Second Medical Charity Clinics, Professor D. A. Claus, Berlin, Reg. Assessor and Prussian Welfare Minister, and Dr. Gulbrand Lunde, Professor of Pramaology in the University of Oslo, Norway.

All members of state and provincial medical societies are, under the provisions of the constitution and by-laws of the Goiter Association, eligible and cordially invited to participate as attending members. The nominal registration fee for such attending members is five dollars, which entitles the registrant to the privileges of the floor and affords him an opportunity to participate and aid in advancing the purposes of the association. It must be clearly understood, however, that becoming an attending member is purely optional, and that all physicians, whether attending members or not, are urged to make their plans to attend any of the meetings or clinics announced.

Clinical material for the medical and surgical clinics as announced must be furnished by physicians throughout this region. Doctors having such patients will be doing a favor by writing Dr. P. J. Connor, Republic Building, or Dr. T. D. Cunningham, Metropolitan Building, Denver, who are in charge of clinical material. It would materially aid this committee if a careful history of each case is furnished by the referring physician. This history should be concise but complete and should include any and all laboratory work that has already been done.

TOUR OF JAPAN FOR COLORADO PHYSICIANS

Mr. Takahashi, who has worked in Denver hospitals for eight or nine years, is now busy trying to organize a party composed of physicians and surgeons of the Colorado State Medical Society to tour Japan next fall.

It is the plan to arrive in Japan in time to take in the Emperor's coronation scheduled for Nov. 8, next. This would be a feature of the good will mission of the Colorado medical men, others being that of taking in clinic lectures at the Imperial University and other leading medical institutions of the Orient as well as visiting and studying systems and methods at the foremost hospitals in Japan.

The tour would be the first engineered by a medical body of America. Dr. Goto, former prime minister of Japan, has written Mr. Takahashi his willingness to arrange the details of the tour "over there."

In a measure the tour would serve as a splendid vacation for the members of the party who would leave Denver on or about Oct. 10, next, via San Francisco. The return trip would start on or about Dec. 10, and would be via the Hawaiian Islands.

A nominal expense of \$1,250 is all it would cost each member of the party, and this would include expenses for travel, sightseeing, meals and all other incidental expenses.

Mr. Takahashi has established his "Tour of Japan" headquarters in room 26, 830 Eighteenth street, Denver, and he will gladly offer complete details to any interested in joining the group. He invites correspondence.

MEDICAL SOCIETIES

Weld County

The Weld County Medical Society invited the members of Larimer and Boulder county societies to join with them in a get-together meeting, which was held at the Camfield Hotel on the evening of May 7th.

Dinner was served at 7 p. m., followed by a scientific program. Dr. Emanuel Friedman of Denver gave a most practical and interesting discourse on "The Obscure Fevers of Childhood." Meeting was then opened for discussion and led off with a splendid talk from Dr. O. M. Gilbert, after which questions were answered and discussion closed.

Dr. Harry Baum of Denver gave his very instructive illustrated lecture on "Infections of the Nasal Accessory Sinuses," demonstrating by lantern slides and x-ray plates both normal appearance and pathological findings of these structures.

Seventy physicians were present and well pleased with the program of the evening.

H. W. AVERILL, Secy.

El Paso County

The May meeting of the El Paso County Medical Society was held on May 10th. Dr. O. R. Gillette gave a very interesting paper on Rabies and Dr. A. C. Holland discussed the question of Vital Statistics. Dr. E. D. Downing presented a clinical case of cutaneous and pulmonary blastomycosis.

W. A. CAMPBELL, JR., Secy.

WOMAN'S AUXILIARY NOTES

The April meeting of the El Paso County Auxiliary was held at Glockner Sanitarium, Colorado Springs. After the regular business meeting Sister Mary Regina showed the guests through the institution, after which tea was served and all enjoyed a social hour.

The next meeting will be devoted to a discussion of plans for the coming state meeting to be held in conjunction with the state medical convention in September.

On Monday evening, May 21, Denver unit entertained at a dinner dance given at the Denver Country Club.

The next regular meeting will be in September.

Lawyers and Lunacy

One will travel far and suffer much before discovering a more discouraging, foolish, and futile spectacle than that of the average American jury solemnly trying to find out whether the accused man before it on a plea of insanity is sane or crazy. Bombarded by the technicalities of experts, confronted with the most baffling and delicate of all medical problems and tangled in a morass of Latin phraseology and modern psychology, they are asked to take action for which only a peculiar attitude and years of study could qualify them.

It is, therefore, gratifying to know that the National Law School of Washington, D. C., has made it a rule that its students shall devote a certain amount of their time to observation and study of inmates of the psychopathic ward of Gallinger Hospital in that city. In the ward are men and women who are held for observation by trained alienists and neurologists, so that they may be classified for treatment, some to be consigned to the insane asylum, some to be sent to sanitariums, according to the nature and stage of their mental illness.

This is a great step forward because it can be taken for granted that the lawyer who has studied mental disease first-hand is permanently impressed with the difficulty of anybody, alienist, lawyer or layman, saying off-hand whether a person is insane, and that, thus impressed, he will perceive the absurdity of expecting juries to handle such problems. With such a background, he will inevitably take his stand among the growing numbers of those, experts and laymen, who contend that all questions of sanity and insanity in the courts should be decided by alienists paid by the state and reporting their findings to the trial judge.

When this or similar procedure is adopted in all the states, as has been done in a few already, the administration of justice will have taken a tremendous forward step.—Editorial in the Asheville, N. C., Citizen.

Dr. Livingston Farrand

Dr. Livingston Farrand, member of the Board of Incorporators, American Red Cross, was chairman of the central committee immediately after the close of the World War. In his book, "The American Red Cross in the Great War," Henry

P. Davison relates the action of a conference between President Wilson and the Red Cross War Council which came to the decision to resume the peace status of the American Red Cross on March 1, 1919. Mr. Davison wrote: "In this connection it gives me great pleasure to state that it was most fortunate for all concerned that Dr. Livingston Farrand was finally prevailed upon to accept the chairmanship of the central committee."

Dr. Farrand came from the presidency of the University of Colorado to take up the huge task of demobilizing the war-time Red Cross. He devoted more than two years to that arduous duty, retiring in October, 1921, to become president of Cornell University, N. Y. He brought to this service a background of eighteen months in war-torn France as director of the tuberculosis work of the International Health Board, where he worked closely with the Red Cross.

In the last seven years Dr. Farrand has never been too busy to respond to a call for service from his Red Cross. He has maintained a most active interest and participation, and upon numerous important occasions has been a valiant spokesman for the organization. He has always been active in medical and social work. He was executive secretary of the National Association for Study and Prevention of Tuberculosis, 1905-14; treasurer of the American Public Health Association, 1912-14; editor of the American Journal of Public Health, 1912-14, and has contributed to psychological and anthropological publications, also being the author of "The Basis of American History." He is a native of Newark, N. J., and degrees have been conferred upon him by Princeton University, College of Physicians and Surgeons (Columbia), by Colorado College, the University of Denver, University of Michigan, and the University of Colorado.—Red Cross Courier, April 2, 1928.

New York State Raises Qualifications for School Dental Hygienists

By action of the New York State Department of Education, dental hygienists engaged in public school work are now considered dental hygiene teachers. They must be certified as such in order that local boards of education may receive the state quota toward their salaries. This provision is the same as is required for all other teachers. Qualifications for certification as a dental hygiene teacher are: (1) "Registration as a dental hygienist in New York state; (2) high school graduation or its equivalent; (3) credentials showing completion of at least twelve semester hours' work in approved professional courses in health education." Provision is made allowing those now employed in or entering school work in 1928 a reasonable time in which to secure the second qualification.

A Survey of Minnesota's Crippled Children

A state-wide survey to locate all the crippled children in Minnesota is being planned by the Minnesota Association for Crippled Children. Since 1916 there have been three epidemics of infantile paralysis in the state, each affecting from 700 to 900 children and leaving many cripples. A Minnesota law provides state aid to the extent of \$250 annually for the education of each crippled child discharged from the hospitals but unable to attend the regular schools. The Michael Dowling School in Minneapolis, operating under this law, receives more than 100 pupils from Hennepin county; it is equipped with special apparatus for treatment of cripples, and the same educational training is given as that provided for physically normal children. Only one other county—St. Louis—has as yet made use of this aid.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 11, 12, 13, 1928.

OFFICERS, 1927-1928

President, William A. Sedwick, Denver.

President-elect, Samuel B. Childs, Denver.

Vice-Presidents, 1st, James M. Lamme, Walsenburg; 2nd, W. B. Hardesty, Berthoud; 3rd, R. H. Finney, Pueblo; 4th, R. B. Porter, Glenwood Springs.

Secretary, F. B. Stephenson, Denver.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association: Senior, T. E. Carmody, Denver, term expires 1928; Alternate, Ralph Johnston, La Junta, term expires 1928; Junior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929.

Councilors: Term expires
District 1. Ella A. Mead, Greeley.....1930
District 2. G. P. Lingenfelter, Denver.....1929
District 3. John R. Espey, Trinidad.....1928
District 4. W. W. Crook, Glenwood Springs.....1931
District 5. A. W. Robbins, Durango.....1932

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, Lawrence L. Hick, Delta.

Denver County—First and third Tuesday of each month; secretary, O. S. Fowler, Denver.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Kon Wyatt, Canon City.

Garfield County—Last Thursday of each month; secretary, O. F. Clagett, Rifle, Colo.

Huerfano County—Third Thursday of each month; secretary, W. L. Wilkinson, La Veta, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, M. J. Stewart, Loveland.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, J. A. Spring, Montrose.

Morgan County—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Geo. Sorensen, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. R. Blalock, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, H. W. Averill, Evans, Colo.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Work: J. J. Waring, chairman, Denver; J. B. Hartwell, Colorado Springs; William Senger, Pueblo.

Committee on Local Arrangements: E. D. Downing, chairman, Woodmen; J. A. Sevier, Colorado Springs; W. W. Wasson, Denver.

Committee on Credentials: F. B. Stephenson, chairman, Denver; H. W. Snyder, Denver; F. R. Spencer, Boulder.

Committee on Public Policy: Philip Work, chairman, Denver; Edward Jackson, Denver; C. G. Hickey, Denver; D. H. Coover, Denver; W. T. H. Baker, Pueblo; P. J. McHugh, Fort Collins; C. A. Ringle, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver (term expires 1928); C. S. Elder, Denver (term expires 1929); W. H. Crisp, Denver (term expires 1928).

Auditing Committee: G. C. Cary, chairman, Grand Junction; O. E. Coleman, Denver; Florence Fezer, Greeley.

Committee on Necrology: W. A. Palmer, chairman, Castle Rock; H. R. Bull, Grand Junction; C. H. Graves, Canon City.

Committee on Medical Education: J. J. Waring, chairman, Denver; Maurice Rees, Denver; L. H. McKinney, Colorado Springs.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; M. Ethel V. Fraser, Denver; C. W. Streamer, Pueblo.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: C. O. Giese, chairman, Colorado Springs (term expires 1928); Maurice Rees, Denver (term expires 1929) O. S. Fowler, Denver (term expires 1930).

Committee on Military Affairs: John Chase, chairman, Denver; L. M. Van Meter, Denver; E. B. Liddle, Colorado Springs.

Committee on Careers of Members: R. G. Davenport, chairman, Denver; W. K. Reed, Boulder; C. E. Sidwell, Longmont.

Committee to Confer With Boy Scouts: H. S. Canby, chairman, Denver; R. S. Johnston, La Junta; Atwater Douglass, Denver.

Committee on Mental Hygiene: F. G. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; T. R. Love, Denver; C. W. Thompson, Pueblo; T. C. Taylor, Fort Collins; F. W. Lockwood, Fort Morgan.

Committee on Periodic Health Examinations: C. F. Kemper, chairman, Denver; G. H. Curfman, Salida; A. H. Harris, Denver.

Committee on Full-Time Secretary: R. S. Chamberlain, chairman, Denver; B. B. Blotz, Rocky Ford; Jean Gale, Denver; A. J. Nossaman, Pagosa Springs; N. B. Newcomer, Denver.

Committee on Co-operation With the State Pharmacal Association: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.

Curator of Exhibits: E. D. Downing, Woodman.

Committee on Golf Tournament: L. G. Brown, chairman, Colorado Springs; J. R. Arneill, Denver; L. M. Van Meter, Denver.

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TUNING IN

TUBERCULOSIS ABSTRACTS

Rest Is Relief from Strain

Rest may mean the sloth of the indolent or the relief from tension that follows change of occupation, says Allen K. Krause. Therapeutically, however, rest represents relief from strain. Treatment must aim to limit and confine the activities of tuberculous foci and to reduce to zero or a minimum the absorption of harmful focal products. At any time, undue stress may stirr quiescent-foci into renewed activity. It is axiomatic that uncontrolled movement of a diseased or injured part will promote the spread of the disease and delay recovery. To stop the progress of tuberculous foci is to cure tuberculosis.

Fefer, fatigue, loss of appetite and other constitutional symptoms of tuberculosis are manifestations of intoxication resulting from absorption of focal substances. The rate and capacity of this absorption depend on the circulatory and respiratory activities of the body. Rest brings about a diminution of physiological demands and reduces the amount of focal absorption.

Rest for the sick man is a better "tonic" than exercise. As a result of prolonged rest, the appetite returns, the fever falls and a sense of well-being sets in, while depleted reserves are built up, thus assisting in the healing of foci. Rest is a potent medicine, to be prescribed according to the requirement of each individual case by a physician who understands its use.

The febrile, acutely ill cases must have absolute bed rest for at least two weeks after the temperature has returned to normal. After the constitutional symptoms have disappeared, the patient must still be kept below the fatigue line. The fatigue line is an individual affair, registered only in the patient's own consciousness. The duty of the physician is to explain to the patient why relief from strain is important. But there can be no set formula for the individual patient; he must rely on his own intelligence and behavior. Rest should be so engraved on the patient's mind that he will automatically respond with rest to the first symptom of fatigue.

Sanatorium treatment is vastly more satisfactory for the majority of patients since rest and discipline and the means of insuring these are more readily obtainable there. The sanatorium, moreover, teaches and trains the patient how to care for himself.—Rest and Other Things, Allen K. Krause, Williams and Wilkins Company.

Food Requirements and Fresh Air

Good nutrition is important, but "stuffing" the patient, as formerly practiced, is a mistake. Over-eating is like clogging an engine with unburnt carbon by using too much fuel. Sometimes, the appetite must be cajoled. Three good meals a day, two or three glasses of milk (with or between meals), one or two eggs a day, are often sufficient to add enough to the patient's weight to bring him the gain wished for. A good general rule is that the least amount of food that will enable any patient who is underweight to gain up to and slightly beyond the normal weight is the optimum diet for that patient.

Fresh air as a "cure" for tuberculosis has probably been overemphasized by the laity. It is, however, an essential aid to recovery. Outdoor air is a mild and beneficial stimulant. Sleeping out of doors does not necessarily hasten recovery,

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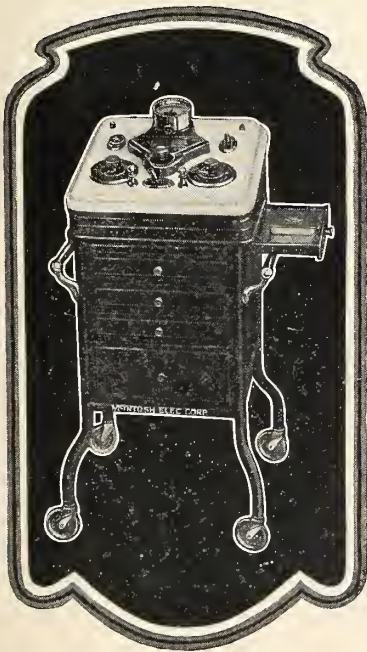
The need for protein is well understood as is also the value of mineral salts, which play such an important part in all metabolic processes. Carbohydrates are a real necessity, for life cannot be long sustained on a carbohydrate-free diet. It should also be stated that the predominating carbohydrate in the above food mixture is maltose—which is particularly suitable in conditions where rapid assimilation is an outstanding factor.

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provided eight to ten hours a day are spent in the open air and the night passed in a well-ventilated room. Mere dryness of the air is of little avail. Temperature, humidity and air movement determine the quality of indoor ventilation.—Rules for Recovery from Tuberculosis, Lawrason Brown, Lea & Febiger.

Disposition of Patients

Patients may be divided into three groups as far as treatment is concerned:

1. Suspects, cases under observation, and those in which the diagnosis is not definite, can be treated at home or fall into groups (2) or (3). The patient is on trial and more radical measures, such as going to a sanatorium, may be, and very likely will be, necessary. In a few cases of this group, sanatorium or hospital treatment, if it can be obtained at once, is of great value educationally and otherwise and entirely justified in instances where adequate home treatment is not possible in order to clear up a diagnosis.

2. Cases in which the diagnosis is definite and in which the disease is progressive, with or without a positive sputum, should be sent to a sanatorium or hospital at once and should remain as long as the physician considers it necessary. This is the ideal to be sought for in the great majority of cases. Home treatment may be substituted (a) when there are no children in the family who might be exposed to the disease in the open form, (b) when the intelligence of the patient or his family is such that adequate carrying out of details is assured, (c) when good nursing and medical service is available and (d) when there are facilities for proper outdoor treatment.

3. Arrested, apparently arrested and quiescent cases need close medical and nursing supervision if the good done at a sanatorium is to be permanent. Home treatment may be satisfactory for the majority of these cases. Frequent visits to the home by the nurse and monthly consultations should be required. The amount of work done and the choice of employment are to be decided by the physician. The patient should know that it may become necessary at any time for him to return to the sanatorium when indications of an impending breakdown occur.—Diagnostic Standards Pulmonary and Glandular Tuberculosis of the National Tuberculosis Association, Seventh Edition, November, 1926.

Climate and Altitude

There is no specific for the cure of tuberculosis. Climate is not a specific. Altitude is not a specific. * * * No physician, therefore, is justified in advising a change of climate unless he knows that the patient's financial status will enable him to command the essentials. To put it categorically, if a little arbitrarily: proper medical supervision, sanatorium regime, either in a sanatorium or in the home, reasonable contentment of mind and intelligent cooperation count 90 or 95 per cent of effective therapeutics; climate and change of environment count 5 or at the utmost 10 per cent. Why, therefore, sacrifice the 90 or 95 per cent for a 5 or 10 per cent in those cases who can not command the 100 per cent? On the other hand, if the patient can afford to go to a first-class sanatorium or secure the services of a good phthisiologist in a more salubrious climate, and will be reasonably contented away from home, by all means he should be urged to avail himself of the full 100 per cent of these efficacious measures.—Louis C. Boisliniere, Journal of the Outdoor Life, February, 1928.

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Chests of Normal Children

A group of three roentgenologists, working in close cooperation with as many clinicians, attempted to establish the x-ray appearance of the normal child's chest. Five hundred children were studied. While it was found impossible to describe a normal chest, they succeeded in establishing a theoretical normal with wide variations that would serve as a basis for the interpretation of abnormal appearances. A composite diagrammatic reproduction of several roentgenographs was made and marked off into three zones. Zone I contains the root shadows, Zone II, the trunk shadows gradually fading out into their final subdivisions and Zone III, radiating lines from these and shading off before the periphery is reached. The conglomerate shadow, commonly called the hilum shadow, when found lying entirely within Zone I, may be regarded as normal except where it is made up of a solid mass of homogeneous shadow giving undoubted evidence that it represents a growth or mediastinal pleurisy. Calcified nodes at the root of the lung without evidence of lung disease are of no significance except as a possible evidence of some healed inflammatory condition, possibly, but not necessarily, tuberculous. Where in Zone II and III normal shadows do not gradually fade out as described, the appearance may be due to a variety of conditions of an inflammatory nature or otherwise; it may accompany a tuberculous process but is not necessarily indicative of tuberculosis.—Clinical and X-ray Findings in the Chests of Normal Children, Harry K. Pancoast, Kennon Dunham and F. H. Baetjer, Amer. Rev. of Tuber., July, 1922, VI, 331-40.

The Healthy Adult Chest

The same group of clinicians and roentgenologists later attempted to describe the roentgenological appearance of the normal adult chest. In view of the many lasting evidences of previous disease found in clinically normal chests, it was decided to discontinue the use of the term, **normal chest** and adopt that of **healthy chest**. On this basis, the clinicians selected 280 adults whose chests were clinically normal. Relationships and appearances of the bones, soft parts, diaphragm, heart, aorta, trachea and bronchi were studied, as well as the hilum shadow, the trunk shadows and calcifications. It was found convenient and practical to divide the chest into zones as in the child's chest studies. Another valuable landmark was established by dropping a perpendicular line from the mid-point of the left clavicle. This line passes well outside the middle of the diaphragm and the apex of the heart is well within the line. Calcifications were almost universally noted in one or both hila by two members of the x-ray group and not so frequently by the third member. Calcifications were occasionally found in the upper lobes and quite frequently along the heavy trunks to the lower lobes. As calcified tuberculosis lesions increase with age and as they are more numerous with children in contact families than with those in non-contact families, it was concluded that calcified tracheobronchial lymph nodes in adults are less significant than in children, for in most instances healing has doubtless occurred.

The complete report, illustrated with diagrams and x-ray photographs may be secured through the tuberculosis society.—Studies on Pulmonary Tuberculosis. II. The Healthy Adult Chest, Henry K. Pancoast, F. H. Baetjer and Kennon Dunham, American Review of Tuberculosis, April, 1927, XV, 429-71.

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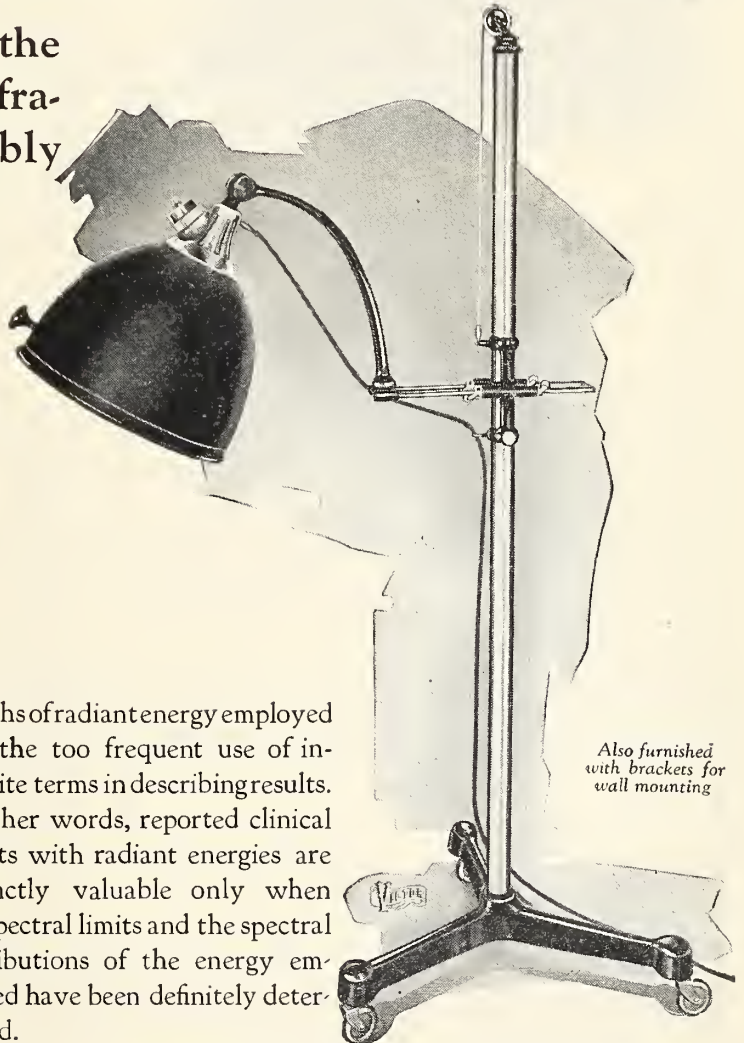
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X-ray for Discovering Juvenile Tuberculosis

A study of 50,000 school children, made by the Massachusetts Department of Health, showed that 3.7 per cent had hilum (tracheobronchial) tuberculosis. Without a roentgenograph, no absolute diagnosis of hilum tuberculosis can be made, nor can tuberculosis be eliminated in an ill child unless the x-ray films are negative. Slight changes in area or of density of the hilum shadows are of no significance, but areas of increased density at the root of the lung or along the trachea that have the form of glands or gland masses justify the assumption that calcified tuberculous glands are present. Rarely one finds a large area of homogeneous shadow extending from the hilum toward the periphery due to a recent infection with tubercle bacilli. Serial films, taken at several months' intervals, show a gradual absorption, ending eventually in a small, calcified nodule.—The Diagnosis and Prognosis of Juvenile Tuberculosis, Henry D. Chadwick, Boston Medical and Surgical Journal, January 26, 1928, CXCVII, 1399-1401.

Serial X-rays to Follow Progress

Many roentgenologists and clinicians advise that x-ray plates be made serially; that is, at regular intervals in order to determine (in conjunction with clinical findings) whether the disease is progressing, retrogressing or remaining stationary. A brief summary of the course of tuberculosis as followed by the x-ray is as follows:

In early active tuberculosis, infiltration most commonly appears in the periphery of the lung above the level of the third rib. The shadows appear light and fuzzy or mottled, densest in the center. Leading from the mottling toward the lung hilum, there are usually seen fuzzy areas along the linear markings and the bronchial trunks. As the disease progresses, the mottling may spread over a considerable area and the shadows seem to coalesce. The densest shadows are interpreted as caseation and these usually appear where the dense areas in the mottling were first seen. From infiltration to caseation ordinarily requires more than a month. Later, the dense caseous shadows become less dense and often entirely disappear, thus leaving areas of rarefaction. By the coalescence of several such areas, a large area involving, sometimes, the greater part of the upper lobe may result, giving evidence of cavitation. As healing begins, the hazy outlines, particularly those at the hilum, become sharper and the areas shrink. Definite opacity is interpreted as deposits of calcium. Consolidated areas, as they become fibrous, show heavy bands extending from the hilum to the periphery. After calcification takes place, areas interpreted as caseation increase in density and finally become sharp and opaque. Calcification is found to develop from eight months to two years. The obliteration of cavities may be shown by the x-ray. Around the areas of rarefaction (cavitation) is seen a dense ring (fibrous wall). As fibrosis increases, the ring contracts until there remains only a heavy clouding or small deposits of fibrous tissue.—Modern Aspects of the Diagnosis, Classification and Treatment of Tuberculosis, J. A. Myers. Chap. IX, Williams & Wilkins.

Family History

Opie emphasizes that close contact, such as occurs in the family, is an important item in the history. Children and adults in families of which some member is tuberculous with sputum containing bacilli, are usually infected with tubercu-

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losis and the infections are often severe. Henry believes that well-defined contact, especially in childhood, is a good basis for suspecting tuberculosis. The ideal contact is a baby associating with the mother.

Fatigue

Hawes lays stress on the constitutional symptoms, most important of which are chronic fatigue, undue fatigue, ease of tire and loss of strength. Miller states that loss of strength is the most outstanding symptom of active pulmonary tuberculosis. Homan says fatigue is one of the earliest and most important symptoms.

Hemoptysis

All writers appreciate the significance of hemoptysis. Bray classes it as the most suggestive of the local symptoms. The amount of expectorated blood varies from a few drams to several ounces. Copious hemorrhages speak for the more advanced stages. A small amount of blood must be interpreted cautiously because of the difficulty in determining its origin. "A physician who fails to realize the significance of hemoptysis," says Minor "is playing with life."

Gastric Symptoms

Anorexia, nausea and other functional gastrointestinal derangements, states Bray, are not uncommon. They may be the first manifestations and present throughout the course of the disease.

Cough

Homan believes that any cough which persists for more than two or three weeks usually means something more serious than an ordinary cold or bronchitis and should call for careful consideration. Miller states, that any cough that persists for one month or longer should be thoroughly investigated as to the possibility of its being tuberculous in origin. While this is a symptom and complaint common to all respiratory infections, it is particularly so in cases of tuberculosis characterized by a catarrhal onset.

Pleurisy

A history of pleurisy with effusion should always arouse suspicion. It may be agonizing but more often it is dull aching in character. It is unilateral and for the most part confined to the base. According to Homan, 90 per cent of pleurisy are of tuberculous origin.

Temperature

Afternoon or evening temperature of 99 degrees or over needs explanation, says Webb, and the temperature should be studied for at least a week with the patient in bed. One or two readings in the office are not reliable. Sewall adds, "when there is a periodic afternoon rise in mouth temperature of one-half degree, increased after exercise, the evidence for tuberculous infection is strengthened; sub-normal temperature points in the same direction if to a different phase."

Vocational Guidance for Czechoslovakia

Czechoslovakia is planning to set up some 400 vocational-guidance offices during the next twenty years. It is proposed that the cost of establishment and maintenance be shared one-third by the employers, one-third by the workers, and one-third by the state, the province, and the municipalities, the payments of the employers and the workers to take the form of supplementary contributions to social insurance. It is estimated that the individual payments would be very small.

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EDITORIAL NOTES AND COMMENT

MENTAL HYGIENE

The progress of the various phases of medical science as reviewed at regular intervals always reveals marked gain, and leaves one very hopeful. Yet on the other hand, the relative futility of attempts to explain the underlying etiological factors of certain diseases, and the continued failure to unearth any rational form of therapy for other conditions makes us realize that our duty lies before and not behind us.

The field for future development in the field of psychiatry is most fertile, and much is to be expected in the years to come. The average general practitioner does not realize how broad this field has become. How, in fact, can he be expected to gain this knowledge from articles in the medical journals he is most likely to read? The work that is being done is still largely pioneer work, and is usually reported in the more specialized journals. The general practitioner is vitally interested in the practical application of our increasing knowledge to those psychiatric problems in his own practice. He is inclined to become rather intolerant of the disposition of "treatment" as usually presented in papers before county medical societies.

The role of hygiene and of preventive measures in the control of mental disease are assuming as rapidly increasing importance in this field as in other fields of medicine. Comparatively recently such subjects as Mental Hygiene, Child Guidance, and Industrial Hygiene are assuming a peculiar and practical significance not only among

the ranks of the medical profession but also among students of Hygiene and Public Health, among psychologists, among social service workers, and among the lay public as well. In the face of such a trend it behooves the general medical profession to keep itself well informed as to what these fields embrace, what they have to offer, and along what lines advances may reasonably be expected in the years to come.

A comprehensive study of the usual mental case must include not only a study of the patient's mental status at that particular time, but a study of his life history, extending back through childhood, with particular attention to all factors involved in the child's development, together with the precipitating factors and the personality make-up. It is through the correct interpretation of the various abnormalities in conduct, and of the attendant circumstances, that we are to expect the greatest help in the future. Habits of mental hygiene, including habit-training, home and personal adjustments, must be instituted at this time.

The Child Guidance Clinics are rightly assuming increasing importance in the study and treatment of behaviour problems in children. Their value to the communities in which they are located is inestimable. Actual results obtained with numerous types of cases over a relatively short period of time are sufficient to justify these clinics in the eyes of the parents, the teachers, and the public. But perhaps more far-reaching and less appreciated at present than in years to come are the painstaking psychiatric studies of these irregularities in behaviour. The re-

search value of this work by these specially trained workers is incalculable. As time goes on, more and more such cases will have been followed throughout their development into certain definite reaction-types or normal individuals as the case may be. Statis-

tics and data based on this work many years hence will undoubtedly reveal much that is not known at present both as regards the underlying factors and as regards the actual lasting value of such types of treatment as might have been used. J. R. B.

THE HEART IN RHEUMATIC FEVER

ROYAL H. FINNEY, M.D.,
PUEBLO

The only excuse I have for presenting this subject is to stress the importance of chronic cardiac disease, an economic load both upon individuals and the community at large, which has attracted growing attention of those whose interests lie in the field of preventive medicine.

During the World War when great numbers of young men, presumably in the prime of life, were examined for the draft into the national army, a startling concept of heart disease and its importance to society was obtained. Two per cent of those examined were rejected because of damaged hearts. A more striking fact than this, because it deals with a younger group of individuals, is found in a study made by the New York Health Department, in which 2 per cent of school children were found to be cardiac individuals.

Broadly speaking, two types are operative in the production of chronic heart disease: (1) infections; (2) pathological processes of senility and degeneration in the later years of life. Of the infections, rheumatism and syphilis play the greatest role. Luetic aortitis occurs in 15 to 25 per cent conservatively of all cases of organic heart disease, and rheumatism in 46 to 64 per cent.

Diagnosis of rheumatic fever is fraught with many difficulties. Varied forms extend from the most trivial "growing pains" to fulminating acute polyarthrititis. To the frank acute rheumatic fever and chorea, there have been gradually added a variety of clinical types, often trivial in themselves and frequently not sufficiently well defined or characteristic, yet nevertheless symptoms of true rheumatic fever and carditis. In one individual, a single attack of follicular tonsillitis may usher in serious and progressive

heart disease; another may pass through repeated attacks and sustain no damage to the heart. The apparent mildness of the infection bears no relation to the possible serious heart lesion, just as much damage resulting in some as though a very severe rheumatic infection had occurred.

While the first chapter of the natural history of this disease concerned itself with the separation from other acute articular diseases, the second is filled with the extension of knowledge as concerns the variety of its manifestations and the sequelae which may follow. In Baillie's work, published in 1797, mention is made that rheumatism may cause enlargement of the heart. In 1827 Sendamore clearly recognized the occurrence of cardiac involvement and cited examples of endocarditis, and pericarditis, saying: there is not, probably, a more dangerous form disease than a sudden seizure of the heart during the inflammatory stage of acute rheumatism. In 1826 Bouilland demonstrated that heart lesions are present in so large a proportion of the acute cases that they must be regarded as being no less essentially parts of the morbid process than the arthritis itself.

Age of the onset plays an important role in the production of the varied phenomena of the disease and in the prognosis. Its invasion appears in early and middle childhood, corresponding to the termination of inherited immunity. At this early period, arthritis is relatively uncommon and mild; in its stead we find recurrent attacks of tonsillitis, myocarditis and even the mild "growing pains." In this age period, when onset is so often insidious, chorea, subcutaneous nodules, and carditis are more frequently encountered than at any other time.

As one passes from the years of early childhood into the adult age groups, rheumatic infection is characterized by acute episodes of increasing severity. The type spoken of above falls into the background, involvement of the heart less frequent, and migrating polyarthritides becomes the dominant phase.

In an analysis of 393 cases of rheumatic fever by Thos. T. Mackie of New York, all but ten were traced as to age at the time of first attack; all of 89 cases of chorea. Four and seven-tenths per cent of his series of acute rheumatic fever occurred before the age of five, but thereafter the curve progressively rises to a peak of 20.8 per cent in the group between 10 and 15 years. Thence it slowly but progressively falls to 1.5 per cent between the ages of 50 and 55. In the chorea series starting with initial incidence of 1.1 per cent its curve rises sharply to a maximum of 58.4 per cent between the ages of 5 and 10 years; falling rapidly then to an incidence rate of 7.8 per cent between the ages of 15 and 20; after which period no initial attacks were found.

With rheumatic fever no age group escapes, however, the liability is far greater in childhood. Just as the clinical type of rheumatism and its frequency of occurrence, seems to vary characteristically at different ages, so the incidence of cardiac complications in the initial attack reflects again the importance of the age at onset. Cases giving a history of diphtheria, scarlet fever, etc., must be excluded when trying to correlate cardiac damage due to probable rheumatic fever. Of Mackie's series 366 were analyzed, and 250 or 68 per cent showed evidence of cardiac disease at time of admission or during stay in the hospital. Two hundred and four of these were available for further study in the follow-up clinic over varying periods of time, four months being the minimum. In 20.6 per cent the cardiac condition was definitely improved. 27.9 per cent presented evidence of progressing lesions; 51.5 per cent were found to be essentially unchanged.

Of 66 cases of chorea, 51.5 per cent showed definite signs of cardiac involvement. Of

41 cases subsequently followed, 27 per cent showed improvement; 19.5 per cent had progressing lesion and 52 per cent were found unchanged. The incidence curve of heart involvement in the initial attack of rheumatic fever approximately parallels that of the age at onset of the rheumatism. With 61.5 per cent of cardiac involvement in the group under five years, a peak is reached between 5 and 10 years of 78 per cent. It is found that only after the age of 25, more than one-half of primary cases escape cardiac lesion. In chorea, however, the curve of heart involvement is a reversal of the curve of age incidence. Chorea makes its appearance most frequently between the ages of 5 and 10, yet cardiac trouble is less frequent during these years. Between the 15th and 20th years, however, when primary cases are found less frequent, the highest incidence of heart trouble occurs.

A few other series differ a little. Sir William Church, in an analysis of 244 cases of rheumatic fever, reports 75 per cent of the cases under 10 years of age showing cardiac trouble in the initial attack; ages above this show a steady diminution to 12.5 per cent after the age of 40. Poynton studying a group of children under 12, found 66 per cent heart involvement in the first attack. Poynton also reports on 200 fatal cases, 100 of which were under 12 years of age; 82 per cent showing post-mortem evidence of active carditis and 100 above 12 years of age showed only 45 per cent. In general, a little more than one-fourth of rheumatic fever patients and a little less than one-fourth of choreas, continue with a cardiac lesion after subsidence of the acute rheumatic trouble.

Of 25 cases followed by Mackie, 88 per cent showed mitral stenosis within 24 months of the initial attack. Of three acute cases frequently examined one did not show mitral stenosis until 5½ years; another 6½ years, and the third with chorea, the mitral trouble did not show until 5 years and 8 months. Such a prolonged period for heart lesions to develop after active rheumatism and subsequent quiescence, indicates that the disease may at times remain clinically silent, yet slowly-progressive, inflicting further

heart damage. This is further supported by the not infrequent finding of Aschoff bodies in the myocardium, years after the last clinical attack had ceased. This means that rheumatic fever is not only active and chronic, but silent and progressive over a long period of time.

Willius at the Mayo Clinic has recently analyzed 160 cases of rheumatic fever, the data of which were available from time of initial infection until death due to heart disease. At the time of examination, the age was less than 50 in 81 per cent of cases. The greatest incidence occurred in the 3rd, 4th and 5th decades, in which 19 per cent, 24 per cent and 29 per cent occurred, respectively. Sex was equally divided. History showed that the first attack had occurred before the age of 30 in 85 per cent, and before the age of 20 in 64 per cent. In only 3 per cent did the primary attack occur after the age of 40. The average age at time of death was 32. Those who had their first attack in the first decade attained an average age of 31 years; those in the second decade an average of 38 years. Time elapsing from the first attack of rheumatic infection to cardiac death was much shorter in the case of elderly patients than in the young. Patients in the 5th and 6th decades lived only 10 and 11 years respectively, following their first infection. Those in the first and second decades lived 25 and 23 years respectively, after their initial infection. Willius also made quite a distinct outline relative to heart pathology, and this can be found in his original article.

As generally understood, recurrent infection is most common in the first 10 years of life; this occurring in 55 per cent of the Mayo series. In one case eight distinct attacks in seven years. The average number of attacks in this age group was three. There seems to be no constant relationship between the number of recurrences and age at which the patient succumbed; more likely related to the severity of infection at time of initial attack, and rigidity of instituted cardiac regime. 39 per cent presented evidence of congestive failure; 147 died a gradual death. Auricular fibrillation was present

in 38 per cent, most commonly in the mitral stenosis cases. Eight died suddenly; five of these with mitral stenosis; one with aortic insufficiency; two aortic stenosis; four from cerebral embolism; and five from subacute bacterial endocarditis.

As to the value of the electrocardiogram in the study of acute rheumatic fever, Wm. Reid and Florence Kenway of Boston have very recently published data. Their conclusions without going into detail are, that of 281 electrocardiograms taken on a series of 26 patients, that first there was an increase in the auriculo-ventricular conduction time; this found in 92 per cent of the cases. In 42 per cent it was the degree found in partial heart block. Second, alternation in the ventricular complex; this detected in 80 per cent. Third, changes in the cardiac rhythm, and extra-systoles were found in 34 per cent. These findings agree quite well with other laboratories. The highest percentage of changes being detected by those taking the greatest number of tracings on each patient. The electro-cardiographic evidence of myocarditis is present although the patient may have become symptom free, and nothing found abnormal concerning the heart on physical examination. This lends strength to the belief that the heart is involved, though not necessarily to a degree that presents clinical signs, in all cases of acute rheumatic fever. The finding of evidence of myocardial involvement in electrocardiograms is of clinical importance, if the changes are marked and persistent; their detection also giving reason for continuing to treat the patient, even though he may appear clinically to have recovered.

As to a specific cause of rheumatic fever, there is more to be learned; some unexplained mechanism. Much has been written lately concerning the specific relation of streptococcus cardioarthritidis. James C. Small of the Philadelphia General Hospital has written on this bacterium in the *Am. J. Med. Sci.*, 1927, 173-101, and very recently in the May, 1928, number of the same journal he has written quite extensively on this causative organism; its cultural characteristics; experimental lesion; immune bodies

in the serum of patients with rheumatic fever; action of an antiserum; of vaccine, and a soluble antigen. While much more must be done to prove the real cause, and procure a safe, standard, active cure, we are very grateful to such workers as Dr. Small and his associates working in special rheumatic fever wards for what good results may follow. Any treatment that will prevent the temporary cardiac complications will be a God-send. The figures given in this article show the small number of improved hearts under present-day treatment; the prevalence of recurrences and the likelihood of continued heart pathology after active symptoms have subsided. Removal of all known foci of infection is certainly indicated, yet some do not agree entirely as to the relation if any, of infected tonsils, teeth, etc.

The death rate from tuberculosis has fallen; that of pneumonia has not equaled that of heart disease since 1910, and while that of cancer is mounting, it is even now

relatively low as compared with that of heart disease.

The Philadelphia workers are striving for something to develop immunity, and immunity is what we need. With those so unfortunate as to become infected we must do our best to protect the heart with rest; proper amount of exercise, and especially proper working environment; continuing supervision over an extended time. Cardiac children need as much supervision as the tuberculous and the diabetic; cardiac adults need working environment, and family association controlled just as keenly as those with tuberculosis or other chronic diseases.

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MYXEDEMA WITH CASE REPORT

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Myxedema is a disease due to a decrease or total lack of thyroid function which causes a lowering of the basal metabolism and an edematous condition which differs from ordinary edema in that it does not pit on pressure. It is most marked in the face and extremities. In the adult we find the associated symptoms of weakness with dyspnea on exertion, lack of appetite, sluggishness of the bowels and kidneys, extreme sensitiveness to cold, slow speech, hoarse voice, slowing of the mental processes and sometimes even a deep melancholia or dementia. The temperature may be subnormal and the pulse is usually slow.

Except for the basal metabolism test, the laboratory findings are not characteristic. There may be albumin and a few casts in the urine. There may be also a secondary anemia.

The basal metabolism test is the most conclusive method of diagnosis of hypothyroid-

ism. The rate is always below normal. Myxedema usually becomes evident when the metabolism falls below minus 17 per cent. If it is minus 35 per cent or lower there is probably a total lack of function of the thyroid gland.

Case Report: Mrs. E. T., Age 29

She had no illnesses during childhood except once when she was in bed three weeks because of a condition diagnosed as heart disease. While in school she was considered a good student. She has been married but never became pregnant. Her menses were regular until her present illness. In 1917 she had smallpox and in 1918 she had two attacks of influenza. About 4 months later she dropped some dishes one evening and during the night had a convulsion followed by weakness and hysterical-like spells of crying and laughing. At that time she had marked swelling of her tongue and lips.

She was in bed three weeks and during the next six months had attacks in which her body became limp and her fingers and toes twitched. She was never unconscious. Relatives thought her mind affected. During this time she was bothered by swelling of the hands and feet and by constipation. Her appetite was good. One physician prescribed a medicine of which she took a number of drops before each meal. This seemed to stop the attacks and she improved a

great deal. However, the physician left town in a few months and the patient discontinued treatment. In a short time her face became puffy and she became very sensitive to cold. She became quite dull mentally and would sit all day without talking. It took her half a day to write an ordinary letter. She also had occasional fainting spells.

When the patient came under my observation in December, 1927, she thought she had kidney trouble because of the swelling of the hands and feet and the puffiness of the face. She complained of feeling weak, dizzy and short of breath with exertion. She had no appetite and was very constipated. She always felt cold and experienced a sensation of numbness of the hands and feet. Her menstrual periods had been irregular as to the intervals between periods and the amount of flow. Her last period was four months previous.

She appeared to be about 40 years of age. She seemed apathetic and dull. Speech was slow and her voice rather hoarse. The skin was a pale lemon color and very dry. That on the hands and wrists was rough and cracked. Her hair was thin and coarse. The face, eyelids, lips and tongue were swollen. The hands and ankles were swollen but did not pit. The lungs, heart and abdomen were negative. Temperature 97. Pulse 65. Blood pressure 110/70. Weight 152 pounds.

Laboratory Examination: The urine and blood Wassermann were negative. R. B. C. 4,016,000. Hb. 70 per cent. Color index .87. B. M. R. 42 per cent.

January 5, 1928: The patient was started on U. S. P. dessicated thyroid gr. V three times daily.

January 26, 1928: The B. M. R. was —14, pulse 68 and temperature 98. Weight 133 pounds. She felt better and her sister said the patient was much more alert mentally and had a great deal more "pep." She was able to do housework without tiring. The skin was smooth and moist and the edema had disappeared as had also the sensation of numbness of the extremities. She had been having a daily bowel movement.

January 28, 1928: Pulse 72, patient somewhat nauseated. Fainted. Dosage of thyroid decreased to gr. two and one half three times daily.

February 4, 1928: Pulse 80. Less nausea. Bowels moved three times daily. Troubled with hemorrhoids. Blood pressure 110/70.

February 11, 1928: Temperature 98. Pulse 80. Blood pressure 118/27. Weight 128½. Still had diarrhea. Thyroid discontinued.

February 28, 1928: Sluggish mentally and quite constipated. Thyroid started. Gr. .11 three times daily.

March 3, 1928: Pulse 88. Temperature 99. Weight 135 pounds. Patient aches all over. No cough or sore throat. Bowels regular. Patient mentally alert. Thyroid dosage changed to gr. 1 twice daily.

May 26, 1928: During the months of March and April the patient complained a great deal of general malaise and sometimes of a sore throat. The tonsils were quite enlarged and showed evidence of infection. They were removed May 1, 1928. A local anesthetic was used. Since then she has felt quite well. She has been on 1 gr. of thyroid twice daily and has maintained her weight between 133 to 138 pounds. The pulse has not been excessively rapid. The basal metabolism taken on this date was —3 per cent. The R. B. C. 5,672,000 and the Hb. 75 per cent. She appears quite normal and does not complain of any of her former symptoms.

This case probably was caused by the acute illnesses preceding her present illness. Like many such cases it remained undiagnosed and was treated for nephritis and anemia. It illustrates the effectiveness of thyroid therapy in relieving symptoms and the improvement of the anemic condition. At one time symptoms of over dosage appeared and the treatment was discontinued until the patient began to give evidence of a need for further medication.

Treatment of course consists in supplying the lack of thyroid secretion. One method, applicable only to hospital patients, consists in giving intravenously a dosage of thyroxin sufficient to raise the metabolism to normal. The dosage is calculated on a basis of 1 mg. to each 2 per cent of lowering of metabolism. This is followed by a daily maintenance dose of either thyroxin or dessicated thyroid. The other method consists of giving relatively large doses of the dessicated gland by mouth until symptoms are relieved and then decreasing to a smaller daily maintenance dose which is usually about 2 gr. of the U. S. P. dessicated thyroid. However, this must be governed by the symptoms of the patient.

The metabolism rate should be checked occasionally. Symptoms of over dosage encountered are: Nervousness, increased pulse rate, excessive loss of weight and diarrhea. This can be controlled by stopping treatment. Occasionally it may be necessary to give digitalis for a while. In the beginning of the treatment the heart may be rapid even though the metabolism is below normal.

The Musically Gifted Child

The April number of *Child Study*, published by the Child Study Association of America, is entirely devoted to the subject "Music and the Child." Dr. Carl E. Seashore, one of its contributors, expresses the opinion that if the serious training in music begins at 10 or 12, the gifted child can accomplish in a very short period all that would have been accomplished during the strain of five or six years of earlier training. He has devised tests to measure sense of pitch, intensity, time, consonance, tonal memory, and rhythm, which, it is claimed, give an adequate indication of individual musical capacity.

Out-of-Doors

A private was shaving himself in the open air when his sergeant came along.

"Do you always shave outside?" asked the sergeant.

"Of course," answered the private. "Did you think I was fur-lined?"

NEURO-PSYCHIATRY AND THE GENERAL PRACTITIONER*

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According to statistics, furnished by the Journal of the American Medical Association, there were, a year or so ago, three thousand, two hundred and eleven physicians in the United States who specialized in neuro-psychiatry. Of this number one thousand, two hundred and eighty-six were employed in state or government hospitals, leaving only one thousand, nine hundred and twenty-five engaged in private practice.

The importance of the subject of neuro-psychiatry is perhaps not realized by all of you.

Giving further statistics from the same source, we find that there were in 1925, in all hospitals of all kinds in the United States, six hundred and twenty-nine thousand, three hundred and sixty-two beds in average daily use. Three hundred and twenty-two thousand, three hundred and forty-two, or a little over 50 per cent of these were for neuro-psychiatric cases. The questions of the control of tuberculosis or of cancer, to which so much attention has and is being given, are of minor importance as compared to neuro-psychiatry. There can be no doubt in the mind of anyone that the brain, which controls all the functions of all the other organs of the body, is the most important portion of that body. This being true, why do so few physicians take an interest in this branch of medical science which deals with the diseases of this organ?

In explaining this lack of interest, I feel that it has been due in great part to the fact that medical schools have failed to give suitable courses in this specialty. Even at the present time, there are approximately twenty medical schools which give no course whatever and in others it is optional instead of obligatory. In fact, the only medical schools that are suitably equipped to give a thorough course in psychiatry are those which are connected with a psychopathic hospital. Another reason is that the average physician dislikes to treat mental cases because they require an extreme degree of patience, they

do not cooperate with the physician and the results are slow and often poor. Possibly the fact that the state has to a large degree taken over the care of the psychotic has further lessened interest on the part of the general practitioner. While it is not to be expected that the general practitioner should be an expert psychiatrist, still, there are many reasons why he should have a rather thorough knowledge of this branch. He should at least be able to distinguish a psychosis when he comes in contact with it.

This is the age of prophylaxis and prophylaxis in mental conditions is fully as important as in any other form of disease. The earlier any abnormal trend is discovered, the more hope there is of saving the patient from a life-long disability. Considerable interest is now being taken in the abnormal behavioristic tendencies of children; if these are not corrected during childhood they usually result in a later psychosis. Naturally the general practitioner or family physician is the first one to come in contact with these mental abnormalities, either in the child or the adult and he should be sufficiently skilled to recognize these conditions and either properly treat them himself or refer them to a specialist. The psychiatrist, as a rule, is the last person to whom a patient, who recognizes the fact that he is suffering with a mild mental disorder, resorts to, as he fears that if he goes to a psychiatrist he will be pronounced as insane. It should be the duty of the general practitioner to attempt to dispel the cloud of superstition and prejudice that surrounds the lay mind as regards mental troubles. When a family physician comes in contact with a psychotic case, he should be careful as to what advice to give the family as to the care. Should the case be cared for at home or sent to an institution? It is known to anyone with experience, that the removal of a psychotic patient from contact with the family is almost always beneficial. It is rarely that a case can be handled in the home. If, for reasons, this is thought best, the physician should require that at least

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one attendant be employed and that this attendant should take his or her orders from him and not be under control of the family. If it is desired that the patient shall be placed in an institution, there are at present two classes of such, the private institution and the public state hospital; the first is only available to those of some means and the latter requires commitment by a court. Here again the seriousness of the matter should be felt by the general practitioner. The commitment of a patient is a serious matter. It must be remembered that commitment implies that the victim loses all his civil rights, he cannot transact business or sign any legal papers and this condition may last indefinitely unless he can be discharged as recovered from the institution to which he has been committed. To obviate the necessity of commitment to the state hospital, many states have made provision for what is known as voluntary commitment, but this only applies to those cases who have

sufficient insight into their condition to voluntarily enter the hospital.

It has appeared to me that further provision should be made to care for that class which cannot afford a private institution and where their families are opposed to legal commitment. Psychiatry is as much a branch of medicine as surgery and I think it should be a requirement for standardization for any general hospital that they provide a ward for neuro-psychiatric patients where a person in moderate circumstances could be cared for until he either recover or legal commitment became necessary.

The object of this brief paper is, first, to call your attention to the importance of the subject of neuro-psychiatry; and, second, to urge upon you general practitioners to watch for these cases, especially in the young, as they may arise among the families who intrust their welfare to your knowledge.

THE CARE OF TRAUMATIC CASES IN A GENERAL HOSPITAL*

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It has been apparent for some years that all is not right with the care of industrial casualties in our general hospitals, this being especially true of fracture cases.

The economic importance of the care of traumatic cases is far reaching, for the accident usually occurs to a wage earner in the prime of life. Under the workmen's compensation act vast sums of money are paid out for permanent disability, a considerable portion of which is unnecessary, resulting wholly from improper treatment.

At the time of the military draft in 1917, the Surgeon General's Report shows that forty-five thousand men, or 2 per cent of all examined, were found to be seriously disabled as the result of ununited and malunited fractures and infections of bones and joints. This is an astonishingly large percentage and indicates that something is radically wrong with our care of these cases.

Sir Robert Jones of Liverpool, the leading authority on fractures in England, gave an address in 1925 on "Crippling Due to Fractures: Its Prevention and Remedy." In this address he severely attacked present day methods and deplored that the lessons of the war were already being forgotten. He then went on to formulate a constructive program. Briefly put, he proposed segregation under men interested in the management and teaching of bone injuries; the removal of fracture cases from the general wards into special wards; and the transfer of fracture cases by those hospital surgeons not especially interested in the work to a fracture department staffed by men whose work and interest lay in that field.

At the meeting of the American College of Surgeons at Montreal last year a special symposium was held by the hospital conferences upon the care of industrial casualties by the general hospitals. The matter was discussed from all angles and certain stand-

*Read before the Colorado Hospital Association, December, 1927.

ardized procedures recommended. At the same meeting in Montreal the Committee on Traumatic Surgery made the following recommendations:

1. That all hospitals receiving traumatic cases for treatment be required to meet the minimum standard requirements of the American College of Surgeons.

2. That each of these hospitals shall have a committee responsible for the supervision of traumatic surgery.

3. That a surgeon approved to treat traumatic cases shall be competent in the field of traumatic surgery.

4. That surgeons dealing with traumatic cases shall keep accurate and complete case records of all patients.

5. That surgeons and hospitals dealing with traumatic cases shall have available adequate diagnostic and therapeutic facilities.

Previous to this meeting the fracture committee of the American College of Surgeons had recommended the establishment of a fracture service in general hospitals and had published minimum standards of requirements for same. Briefly, these are as follows:

- A. Segregation of all fracture cases in special wards.

- B. A minimum equipment for the treatment of fractures, consisting of certain specified splints and apparatus and suitable x-ray equipment, including a bedside portable unit.

- C. Special record sheets for fracture cases, giving a detailed description of the injury, its progress, and the end-result.

- D. One individual surgeon, or group of surgeons, responsible for the care and supervision of fractures.

The desirability and need for the organization of a fracture service in the general hospital having been pointed out, a brief description of such a service as is being conducted at the Minnequa Hospital of the Colorado Fuel & Iron Company at Pueblo seems in order. The organization is known as the Fracture and Orthopedic Section, and is under the direction of one individual surgeon who is responsible for the care and super-

vision of all traumatic cases admitted to the hospital.

Such an arrangement would be impossible, of course, in an open staff hospital, but there is no reason why there could not be a special committee made up of members of the staff particularly interested in this type of work, which would be responsible for the proper organization and supervision of the fracture service and the care of its equipment.

Segregation: All traumatic cases are taken immediately on admission to a surgical dressing room where they are given emergency treatment and prepared for bed. A special ward is set aside for these cases and as far as possible no other cases are admitted to this ward.

As soon as a patient is able to be up and about on crutches he is sent to a convalescent ward or sent home to return three times a week to an out-patient clinic for dressing and observation.

Physical Equipment: Elaborate and expensive equipment is not necessary, but all apparatus should be standardized and there is a certain minimum equipment that is essential. Practically all of our splints are made very satisfactorily by the hospital mechanic according to specified patterns of the simplest design. Space will not allow a detailed description of the apparatus needed but mention should be made of certain things that are essential.

1. An assortment of Thomas splints, U. S. Army type, for both upper and lower extremities, and for children as well as adults.

2. Some form of overhead frame for suspension of fractures. We use a gas pipe frame attached to the bed to which cross pieces and pulleys may be fastened for suspension and traction.

3. Equipment necessary for the proper preparation of plaster of Paris bandages. This includes Grade A crinoline, fine dental plaster, cotton wadding, stockinet, felt, etc. The plaster technique employed in most hospitals and by many surgeons is wholly unsatisfactory and even dangerous. Plaster bandages must be carefully made and properly applied. If such is done plaster dress-

ings form a valuable aid in the care of fracture cases and can be used to take the place of awkward, ill-fitting and complicated splints. Canned plaster as supplied by the surgical supply houses will not do. To be satisfactory the plaster bandages must be made by the hospitals.

4. Operative Equipment. Some form of adjustable fracture table is essential. Our preference is the new Hawley table manufactured by the Kny-Scheerer Corporation. A suitable variety of bone instruments should be included in the equipment of the operating room. Satisfactory bone work is impossible without proper instruments.

5. Splint Room: All splint equipment should be kept in order and in a special room set aside for that purpose with one person responsible for same. When the splints are removed from patients, the padding is taken off, ropes untied and removed, and the splints cleaned and returned to their proper place.

In the average hospital splints are usually found scattered through utility rooms or closets over the hospital or in some corner in the basement, padding and bandages still attached, and the splints covered with rust and dirt. This is wasteful and inefficient.

6. X-ray Apparatus: Properly taken radiograms are absolutely essential in the treatment of all fracture cases. The equipment should include, in addition to standard apparatus, a fluoroscopic table and a portable bedside machine. All x-ray work should be done by a trained technician or physician.

7. Physiotherapy: There is no doubt that the various physiotherapy methods now so popular, form a valuable adjunct to the treatment of traumatic cases, shortening the period of convalescence and lessening the disability. Elaborate and expensive apparatus is not always necessary, however, for carrying out satisfactory physiotherapy treatment. Properly given massage with active and passive manipulation is far more effective than all the various forms of light and electricity. Diathermy, baking, radiant heat, galvanic and faradic electricity, and various forms of hydrotherapy are all useful, however.

The treatments should always be given under the supervision of the doctor; or, better yet, a specially trained technician.

Case Records: It is especially necessary because of medico-legal importance that careful records be kept on all industrial cases. These should include a detailed history of the accident, giving time and place; a description of the injury, the treatment carried out; and, most important of all, the final result. The record that we keep is on a special form, simple but covering all necessary details, and easily filed.

Instruction: Not the least important function of all hospitals is that of teaching, both for interns and nurses. It is the teaching function of the hospital that forms such a strong argument for the establishment of a special fracture service. Fracture teaching is proverbially poor today because the care of fractures is usually handled in such a haphazard manner and often relegated to house officers or junior members of the staff who know little about their care and care less. For the proper conduction of any special service, it is necessary that the interns and nurses be thoroughly trained in the routine care of such cases. At the Minnequa Hospital the nurses are given a course of lectures and demonstrations in traumatic and orthopedic surgery. Not only that, but special detailed instructions are typewritten and given each nurse as to the care of these cases on the ward, a copy of which follows:

Conclusions

In conclusion allow me to emphasize the following points:

1. The care of industrial casualties is an important economic problem which in the past has been handled most unsatisfactorily in the general hospital.

2. The organization of a special traumatic or fracture service is eminently desirable and quite feasible in the average hospital.

3. Such a service should be conducted in accordance with the minimum standard requirements recommended by the fracture committee of the American College of Surgeons.

INSTRUCTIONS FOR THE NURSING CARE OF FRACTURE CASES

1. In handling a fractured extremity exert gentle and constant traction on the part and be sure that the part is firmly supported above and below the site of fracture—do not allow the part to rotate on its long axis.
2. Never allow a fractured extremity to lie unsupported, but always apply some form of emergency splint. A pillow tied around the extremity will work for want of something better.
3. Keep extremity elevated as much as possible to lessen and prevent swelling.
4. When any form of retentive apparatus is applied, watch toes or fingers carefully for swelling, coldness and discoloration.
5. Guard carefully against and inspect frequently for pressure sores—investigate any continued localized pain.
6. In applying any type of splint see that it is well padded, particularly over bony prominences, such as tuber ischii, malleoli, heel, patella, olecranon, etc.
7. When two skin surfaces are brought in contact, as in Velpeau dressing for shoulder injuries, always place a well powdered pad of cotton and gauze between the two surfaces to prevent excoriation.
8. When splints, plaster dressings, traction straps, or any form of retentive apparatus are removed cleanse the part well with alcohol, ether if necessary, and powder with talcum.
9. Remember that fractures properly reduced and immobilized are always comfortable after the first 24 hours. If they are not, something is wrong and the patient's complaints should always be investigated and reported.

10. Special instructions for the care of fractures treated by the traction and suspension method.

(a) When this form of treatment is carried out particular care is necessary in seeing that the apparatus is properly adjusted and is working efficiently. The whole success of the treatment depends upon this.

(b) Be sure that the rope runs easily and smoothly through the pulleys.

(c) Do not allow weights to rest on floor or any part of bed.

(d) Do not allow spreader to slip down and come in contact with the pulley.

(e) Make sure all knots are securely tied. Tie only square knots.

(f) In cutting rope, tape with adhesive and cut through the adhesive to prevent raveling.

(g) Do not allow heavy bed clothes to rest on ropes.

(h) Watch **carefully** for any slipping or maladjustment of traction straps, ice tongs, steel pin, weights, pulleys, or rope and report immediately.

(i) This apparatus **must** be neat and simple—long frayed out rope ends, weights of irregular sizes and shapes, dirty and wrinkled slings, sloppily applied bandages and dressings all serve to defeat the purpose of the apparatus.

(j) All changes in weights applied as traction should be carefully charted.

(k) When apparatus is removed, all splints are cleaned, slings and padding completely removed, all ropes removed and knots untied, cross bars taken down and pulleys removed, and all **carefully assorted and put away in their proper places** so as to be readily available when next needed.

(l) Success in this form of treatment depends upon careful attention to minute details, neatness and efficiency of apparatus applied, careful adjustment, and constant watching.

ACUTE SUPERIOR POLIO ENCEPHALITIS

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PUEBLO

The following cases are presented not only because of their intrinsic interest but also because, although ordinarily rare, they presented themselves within a month and during a period when influenza was epidemic while each occurred in widely separated localities.

Acute poliomyelitis in sporadic or epidemic form is a commonly accepted problem and it is rather perplexing that the higher cord centers are not more frequently involved, at least in proportion to the total number of cases. In onset, lack of general reaction or systemic involvement, insignificant fever, indifferent etiology and subsequent course these cases are quite analagous to the ordinary poliomyelitis. Eye phenomena were common to all cases and in one case centers

lower in the cord were markedly involved. The development and extent of the clinical disturbance produces a multiform picture in direct ratio to the number of bulbar or pontine centers affected.

The incidence of this condition during an influenza epidemic suggests the latter as a direct or at least an associated cause while it is a matter for easy speculation as to whether such manifestations as these may not bear the same relation to the influenza wave as does the now notorious encephalitis lethargica. It appears reasonable that a number of such cases have occurred in various degrees and manifestations and that a wider census should throw more light upon its prevalence, morbidity and extent of permanent incapacity. These cases have been

The authors present three cases which they feel may be grouped under the classification of acute superior polio encephalitis in all of which eye phenomena were dominant and in which the site of the bulbar or pontine pathology was variable, in one case producing a complete ophthalmoplegia externa.

classified under the above diagnostic head, although there is not a great volume of such cases recorded and the characteristics of the disease are not sharply delineated. As a rule the recovery in the majority of reported cases has been incomplete and required months or years to attain its final degree.

The condition is fundamentally a bulbar affair, the cerebral functions not being disturbed although other than the cranial nerves may be more or less involved. As a rule the vital cardiac and respiratory centers are not affected although it is conceivable that this may occur, resulting in a fatal termination doubtless before the other manifestations can appear to establish a diagnosis.

From an ophthalmological standpoint these patients were particularly interesting for several reasons: 1st. Affections of one or more ocular muscles were present in all three cases and in one, that of the boy, the eye lesions were the only findings of any fundamental significance developed in the general physical examination.

2nd. In cases one and three there was apparently an involvement of the pontine pathway of the third nerve without any involvement of the nerve nuclei themselves. This would seem to be indicated because of the fact that other than eye muscles were involved and yet all pathology could be explained by a pontine lesion.

3rd. Case two presented a typical picture of the so-called acute superior polio encephalitis. Throughout the whole progress of the disease only the external ocular musculature was attacked, the internal musculature not becoming involved in the slightest.

The two most common causes of this disease are given as syphilis and chronic alcoholism, the next most commonly mentioned being influenza. Cases have also been reported as being found following infections such as diphtheria, scarlet fever, typhoid, lead and tobacco poisoning.

The pathological lesions found in the pons or bulb on postmortem examination are hemorrhages; softening, the result of thrombosis; acute hemorrhagic inflammation and acute or chronic inflammatory degeneration

of the cells of the nuclei. Some cases have been observed in which on postmortem examination no visible lesions were observed.

4th. In the second case where the ocular involvement was the most extensive and the most serious, the recovery was the most complete; whereas, in the other two cases, case one made an almost complete clinical recovery and case three had shown no ocular improvement up to the time when she was last seen.

Mrs. T. H., Age 30. First seen Feb. 20, 1928

No antecedent history of note except tonsils removed five years previously.

For two months previous to admission had had mild chronic sore throat. One week previous developed diplopia and dizziness since which time she had been in bed. Two days ago noted that speech was thick, regurgitated fluids through nose and coughed violently if she attempted to swallow when sitting up. Possibly a numbness in fingers recently.

There was no headache, general pains or other disturbance. Mentality was clear and she slept well.

Examination in bed showed a fairly nourished white woman with a slightly apathetic expression but with intelligence clear. There was doubtful ptosis of the lids and no deficiency of frontal muscles. There was partial inaction of right cheek muscles but no rigidity of the neck. No tongue difficulty and sensation in pharynx was questionable. All general reflexes were normal as well as sensation and there was nothing of note elsewhere. Nose and throat negative except for palatal paralysis. The urine, blood count and Wassermann were all negative. The cerebrospinal fluid was clear. Pressure 6mm. mercury. Cells per cubic mm. 19. Lymphocytes 83. Neutrophils 17. No bacteria found. Globulin 1 plus. Wassermann negative. Glucose 51 mgm per cent.

Eye findings: Externally both eyes showed a slight drooping of the upper eyelids. The left eye turned slightly outward in distant fixation and much more so in near fixation. On looking downward there was a slight lagging of the left eye. There was a marked rotary nystagmus of both eyes when turned to the extremes in all directions. The left pupil was larger than the right and both were sluggish in response to light, the left more so than the right. The media and fundi were normal right and left.

For a week the condition was practically unchanged, the patient being fairly comfortable. Symptomatic treatment was supplemented by four doses of metaphan. When this patient was last seen on March 23, 1928, the condition of the eyes had improved to such an extent that doubling was no longer present. Examination at this time revealed the following: a very insignificant ptosis of both eyelids still persisted. There was still some lagging of the left eye ball on extreme downward rotation and there was slight nystagmus when the eyes were turned to the extremes of all directions. Convergence was now good and with the proper correcting lenses over her eyes there was no lateral phoria at 20 feet, and only $\frac{1}{2}^{\circ}$ of right hyperphoria at 20 feet. At 12 inches the eyes showed 3° of exophoria. The general situation was eminently satisfactory.

F. T., age 9. First seen Jan. 10, 1928.

Had been in ordinary health up to two weeks before admission. At that time carried head to one side, complained of pain in one eye, diplopia, some dizziness and more or less vomiting.

Examination in bed shows fairly nourished boy with no facial disturbance or difficulty of throat control. The tonsils were cryptic but no enlarged cervical glands. Review of the chest, abdomen, reflexes and sensation were all normal. Nose and throat negative. The urine blood count and blood Wassermann were all normal. Spinal fluid: pressure 2mm., mercury; blood tinges (traumatic); glucose content 57 mgm. per cent; Wassermann negative.

Externally the eyes revealed a slight drooping of both upper lids, this being more marked in the right. The right eye was turned slightly outward and upward. The conjunctiva of the lids was slightly injected in both eyes while the bulbar conjunctiva was markedly injected in the right and not at all in the left. There was practically no movement of either eye ball in any direction when seen on this day, the eyeballs being apparently immovably fixed in their sockets.

The pupils were equal and readily responsive to light and accommodation. Both fundi revealed some slight venous congestion but were otherwise normal.

At the end of a week he began to show some signs of an improvement in his eyes. The ptosis right and left still persisted. The conjunctival injection had subsided considerably. While there was still very marked restriction of movement of the eyeballs in all directions there was a very definite improvement in this respect. He was now able to move his left eyeball upward and downward about 15° and to a slight degree in the lateral plane. A barely perceptible movement in the up and down direction was noticeable in the right eye. He was allowed to leave the hospital at this time being given mercury and potassium iodide to take by mouth and absolute rest in bed being insisted upon. As he lived quite a distance from Pueblo it was not deemed wise to have him come in for frequent examinations and he was not seen again until March 9 of this year. However, a letter from his mother in the latter part of January stated that at this time the eyes showed a marked improvement. In a state of rest they both now seemed to turn inward toward his nose. Upward and downward movements were apparently normal. He still kept the right closed on account of the doubling.

On his return to us on March 9 of this year he appeared to be generally in a very highly nervous state and very easily excitable. His general condition was good otherwise and he had regained much of his former strength. Examination of his eyes revealed that the right eye had a tendency to turn inward at times. Otherwise all external ocular movements were apparently normal. Pupils were equal and readily responsive to light. The fundi were normal right and left.

As he had a moderate grade of hyperopic astigmatism right and left he was given glasses for this trouble at this time.

When last seen on May 16, all evidences of his former trouble had entirely disappeared. All external ocular movements were normal and there was now no tendency of the right eye to turn inward. His muscle balance with his glasses on was normal. Although still keeping him under observation and certain restrictions as to his activities having been imposed, he has apparently made a perfect recovery to date.

Miss L. W., age 16. First seen Jan. 23, 1928

Antecedent health had been good except for a mastoid operation nine years previously. She had rare mild colds and sore throats.

A month previously she noted numbness in right fingers later extending into the hand and wrist with shooting pains preventing sleep. In the past week the left fingers have become affected with contractures of elbows and loss of strength in forearms. The left toes have been numb and for four days there has been diplopia. There was practically no headache or dizziness and no systemic complaint.

Examination shows a well nourished girl with no paralysis of facial muscles or mouth. Teeth good. Tonsils small. No large cervical glands or thyroid. The review of the chest and abdomen disclosed nothing of significance. Both elbows are semiflexed, weak and painful to move. Upper arm not involved. No atrophy. Tactile temperature and position senses all clear. No disturbance in feet or legs except loss of temperature sense for eight inches above left ankle. General reflexes all normal.

The urine, blood count and blood Wassermann were not significant. The x-ray of the head was normal. The spinal fluid was clear, pressure of 3 mm. of mercury, 15 cells per cubic mm. Butyric acid 2 plus; Nonne-Apel phase 1 and 2 two plus. Wassermann negative.

Her ocular examination revealed the following: Right eye pupil 3 mm. in diameter and readily responsive to light. Media and fundus were normal. All external ocular movements were normal.

Left eye: Pupil was 5 mm. in diameter and there was no response to light. The fundus revealed a slight venous congestion but was otherwise normal. The left eye was turned outward and could not be moved inward beyond the midline. There was also marked restriction of upward and downward motion with a very slight drooping of the upper eyelid.

Aside from anodynes and local and symptomatic treatment the patient was given four intravenous injections of metaphen. After two weeks the pain became less, the numbness receded and motion was more free. Progress continued slowly after that and the patient passed out of observation.

At the last time the patient was seen in the latter part of March, her eye condition had remained practically the same with not the slightest improvement.

Syphilis Appears to Be on the Decline.

Since the advent of modern chemotherapy with the arsphenamines, backed by an increased knowledge regarding the use of mercury and bismuth, the general impression has been that the incidence of syphilis has diminished. These impressions are only now being verified through studying data accumulated since the time of Ehrlich's startling discovery in 1910. Jadassohn has reported the result of a questionnaire addressed to fifty-one specialists in nineteen countries. Almost all agreed that there had been a decline in syphilis and that the main cause was salvarsan. The importance of popular enlightenment, improvement in medical training and the creation of treatment centers were stressed.—Health News.

"He's just a prince of a fellow."

"Yes. I've often wanted to crown him myself."—West Point Pointer.

FAILURES IN INGUINAL HERNIORRAPHIES

WILLIAM SENGER, M.D.

PUEBLO, COLORADO

The lot of the common laborer is not an enviable one—even when he is in good health. Without health he is only too prone to become more or less a social liability.

And of all the annoying, often times completely incapacitating lesions, hernia must stand in the foreground as one of our great industrial surgical problems.

In the last consecutive 3,500 herniorraphies performed at Minnequa Hospital, the clinical varieties (in percentages) were as follows:

Double inguinal, 48; right inguinal, 28; left inguinal, 8; femoral, 8; central (including post-operative), $7\frac{1}{2}$; all others, $\frac{1}{2}$.

Of this total, then, 2,940 cases suffered from inguinal hernia on one or both sides.

We have been unable to trace many of these patients, largely because a great proportion belongs to the shifting labor group.

By taking advantage of all available methods of gathering data—1,105 of these cases have been traced. Among these there have been 5.49 per cent of recurrences. Whenever such a case was found, the operative procedure was carefully reviewed; the case, if possible, re-operated, and final deductions made as to the cause of the failure.

The most common cause of recurrence, it seems to me, has been the tendency to hard labor too soon after operation. It is difficult for the laborer gradually to tone his muscles up to proper standard after a period of forced idleness. If he work at all, he has little choice but to plunge immediately into his job, however hard it may be. And the still weakened herniorraphy may suffer the penalty.

In this, after properly cautioning the patient, the surgeon should in no way be held responsible.

The next most common cause of recurrence has been the tendency to utilize one method of operating all cases of inguinal hernia.

“Standardized” operations are legion—each with its good and bad points. None, however, is or can be a panacea for all. A

large direct scrotal hernia in an old asthmatic is a far different problem from a small indirect protrusion in a healthy child. One taxes our ingenuity to the utmost; the other is cured if the hernical sac be destroyed!

One should approach a herniorraphy with the same mental attitude as when performing any other repair—to know the good and bad of most operations and to try to choose the best for the particular case in hand. This can only be done after the external oblique has been incised and the individual problem is thus laid bare.

At this moment the disposition of the sac is most important. All agree that with very few exceptions the entire sac should be gently stripped of all other tissue, opened and contents reduced. Through its opening, careful search within the peritoneal cavity should always be made for any other sac. If found, it should be treated accordingly. If overlooked, it is the third great cause of failure. It is remarkable how frequently one will find a second or third sac discoverable only by exploration from within the peritoneum.

All sacs should be divided high up and the stump sutured. It should then be anchored as far internally and away from the weak spot as is possible.

If the sac be scrotal, it is often preferable to leave the lower part in situ rather than bruise the testicle in roughly tearing it loose. But whatever method is employed, the removal of the sac or sacs high up is essential. Otherwise a redundant peritoneum pouches out; a potential hernial sac is left behind; and the foundation for the fourth cause of failure is laid. All secondary sacs should be disposed of, attacking them from within the peritoneal cavity if necessary.

After disposing of the sac, the next problem is to decide what to do with the cord. We feel that the fat pads along the canal should be removed; this, however, should be done by sharp dissection with as little disturbance as possible to the cord. Rarely

does it seem necessary to excise any of the veins. The danger of producing an orchitis would scarcely compensate for the advantages gained.

The sixth cause of failure has seemed to us to be largely based on the advisability of transplanting the cord. Nowhere must the merits of the individual case be more carefully considered.

If there is marked weakness about the internal ring, we reconstruct thus—with mattress sutures unite the transversalis fascia and internal oblique to Poupart's ligament, being careful that the internal ring is elevated; imbricate both flaps of the external oblique beneath the cord. To prevent constriction sometimes it may be necessary to make a slight transverse cut in this aponeurosis opposite the internal ring. If there is a reasonable amount of subcutaneous fat, the transplanted cord has always seemed amply protected from external injury.

If the region of the internal ring seems sufficiently strong, the cord is left in situ; the rectus muscle is stitched to the pubic attachments of Poupart's, Gimbernat's and Cooper's ligaments at the lower angle. This tends to make the strongest possible barrier to the lower part of the canal, the greatest point of weakness in the direct hernia.

As the suture progresses upward, the conjoined tendon is attached to Poupart's. The external oblique is then doubly imbricated.

At any stage of the repair, sutures may be drawn too taut in a zealous endeavor to get a firm union. Such a procedure is always fraught with danger. This region can almost always be sufficiently mobilized to bring the tissues together without tension, otherwise another failure faces us.

In very rare cases free fascial transplants may be indicated. In our entire series we have felt this was necessary in only four cases.

Two other causes of failure are mentioned, only to be condemned as due to gross carelessness—injury to nerves and infection.

Throughout this paper, the surgeon will recognize the adoption of many methods described by numerous authors. No original nor distinctive method is claimed—merely an

attempt to indicate what we have chosen as giving us the most satisfaction.

Frank criticism of one's own shortcomings paves the way to better results.

With this in view the above study was made.

Among the 2,940 cases of herniorrhaphy there have been 3 deaths: Post-operative pneumonia, 1; pulmonary embolus (on the eleventh day post-operative), 1; shock following resection of gangrenous intestine in hernial sac, 1.

Summary of Causes of Failure:

1. Returning to hard labor too early.
2. Utilizing a single "standard" method of operating.
3. Neglect in discovering more than one sac.
4. Neglect in removing the entire sac or sacs.
5. Leaving fat along the cord.
6. Failure to reconstruct the canal or to leave the cord in situ as the individual case may indicate.
7. Tying sutures too tight.
8. Injured nerves.
9. Infection.

California Studies Its Mental Health Needs.

The National Committee for Mental Hygiene has been invited to study the mental-hygiene needs of the state of California. Arrangements were made by interested local groups for a conference with Governor Young and other officials of the state, and Dr. George L. Wallace, a member of the National Committee's Executive Committee attended this conference, at which the whole situation was fully discussed.

In his address Dr. Wallace outlined the elements of a state-wide mental-hygiene program and described at length the advantages to be gained from the establishment of a state psychopathic hospital, out-patient mental clinics, psychiatric social service, a state-wide clinical organization for the examination and placement of backward children in the public schools, clinical service in connection with the courts and penal institutions, and other essentials of a state-sponsored plan of mental-hygiene activities in institutions and in communities throughout the state.

Plans are now being considered, as a result of the conference, for a comprehensive and thorough survey of the mental-hygiene problems of California, with the formulation of an adequate program of work as the ultimate aim. —Mental Hygiene Bulletin.

A Punny Conclusion

Sister: "I'm an artist."

Brother: "I'm an artist also."

The Unnecessary One: "Oh, I see! a pair of drawers!"—Rutgers Chanticleer.

LARGE BLADDER DIVERTICULUM CASE REPORT

HAROLD T. LOW, M.D., F. A. C. S.

Mr. S. A. P. Age 38. Sheepman. Referred for urological study by his family physician. Unessential history left out for brevity. Family history negative. Both parents living and well.

Present Trouble: Extreme difficulty in starting the urinary stream—passes an ounce or two of very foul, purulent urine and a few minutes again passes a like quantity. Dysuria marked. Frequency day 20-30 times; night 10-12 times. Finds that he can void easiest if on hands and knees, other times by lying on right side and abdomen. Change of position often helps a second voiding. Patient never feels that bladder is completely empty. During past two months, has noticed that there has been blood in the urine at times. Patient states that this condition first began about ten years ago at age 28. At first the only symptom was frequency; later urgency and beginning difficulty in completely emptying the bladder. Urine began to have a foul smell and looked cloudy. About five years after onset of trouble had acute retention which was relieved by catheterization. From this time on the difficulty to start the urinary stream became more marked and all the symptoms became more markedly aggravated until the present time. During this ten-year period, he has consulted many doctors and has been treated for various urinary ailments. His present physician was sufficiently interested to send him for complete urological study.

Upon physical examination, the following conditions were noted: A well developed, muscular man who presented the appearance of one in acute distress and anxiety, and showed the lack of sleep, otherwise in perfect health.

Pupils react to light and distance equally. All reflexes normal. Gait and station normal. Mouth, teeth and throat negative. Lungs normal. Heart sounds clear and distinct. The abdomen normal except that upon deep pressure over the suprapubic region, tenderness could be elicited. The external genitals normal and the prostate upon rectal palpation was normal in size, shape and consistency. In the region of the left seminal vesicle a very definite fluctuating mass could be felt.

Cystoscopy: Revealed a remarkably trabeculated bladder wall and hypertrophied trigone. Intense inflammation generalized. The interureteric ligament was very prominent. At the urethral orifice a median bar could be seen and the entire orifice was contracted. Both ureters were visualized in a normal position and each catheterized to the renal pelvis. Urine obtained from both sides showed about plus two pus and colon bacilli. Indigo carmine five c.c. intravenously was delayed on the left side about fifteen minutes. Immediately above and external to the left ureteric orifice was seen an inflammatory opening about one-fourth c.m. in diameter. This opening readily admitted an ureteral catheter full length. Checking the diagnosis at this point with a cystogram, the large diverticulum in Plate I was found. Plate I shows the bladder being emptied and diverticulum still full. The size of the diverticulum was estimated as of 24-ounce capacity.

Further examination revealed patient's blood count 17,000 leucocytes, 78 per cent polys. The blood chemistry showed a retention of non-protein-nitrogen, it being 78 mg. per 100 c.c. of blood. Urea 36 mg. per 100 c.c. of blood. Creatinin 2 mg. per 100 c.c. blood.

Catheter drainage per urethra was instituted and within two weeks' time, the patient was feeling fine and the blood chemistry was normal.

Operation: Under ether anesthesia the bladder was opened suprapubically and orifice of the diverticulum located and dilated by finger dilatation. A circular incision was made through the bladder mucus membrane around the orifice of the diverticulum, and an attempt made by traction with Ellis forceps to invaginate the sac. This could not be done and only after going external to the bladder with one hand and separating the dense adhesion to the pelvic colon and left seminal vesicle, then by combined internal traction and external manipulation was it possible to finally invaginate the sac. The

ureter having been previously catheterized was not adherent to sac.

The sac was then completely amputated and the wound in bladder wall repaired. Then with the bladder still open a punch operation was done on the median bar and also several punches made in bladder neck. The bladder was closed in usual way with drainage. A drainage tube was also placed

along side of the bladder and by counter incision brought out of the lower abdominal wall.

On the third post operative day a fecal fistula developed, feces exuding from path of extravescical drainage. This was proven by the fact that the fluid of a rectal enema all poured out this opening. The drainage tube was removed and the fistula closed im-

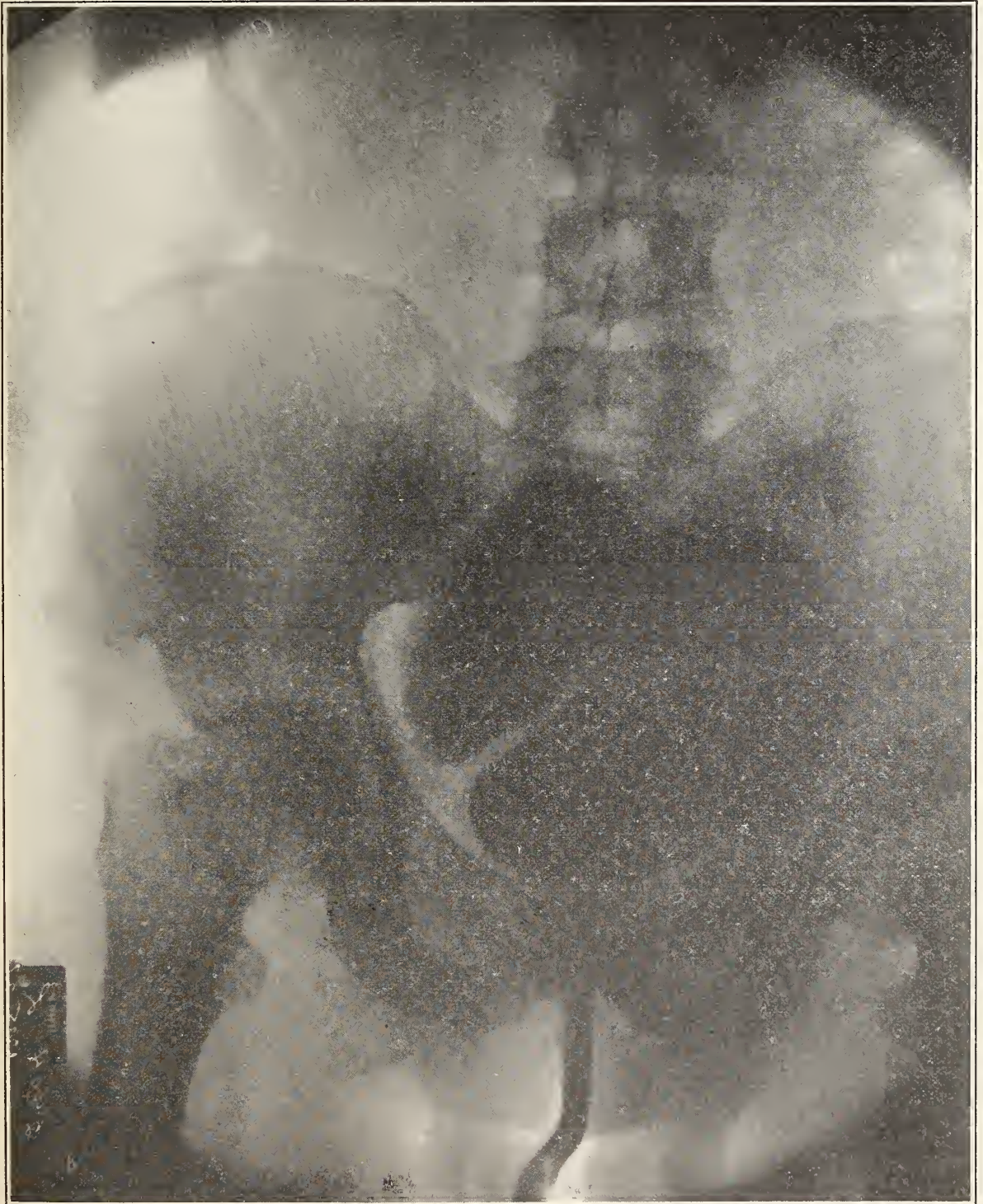


PLATE I shows bladder filled and large diverticulum on left side. Capacity 24 ounces.

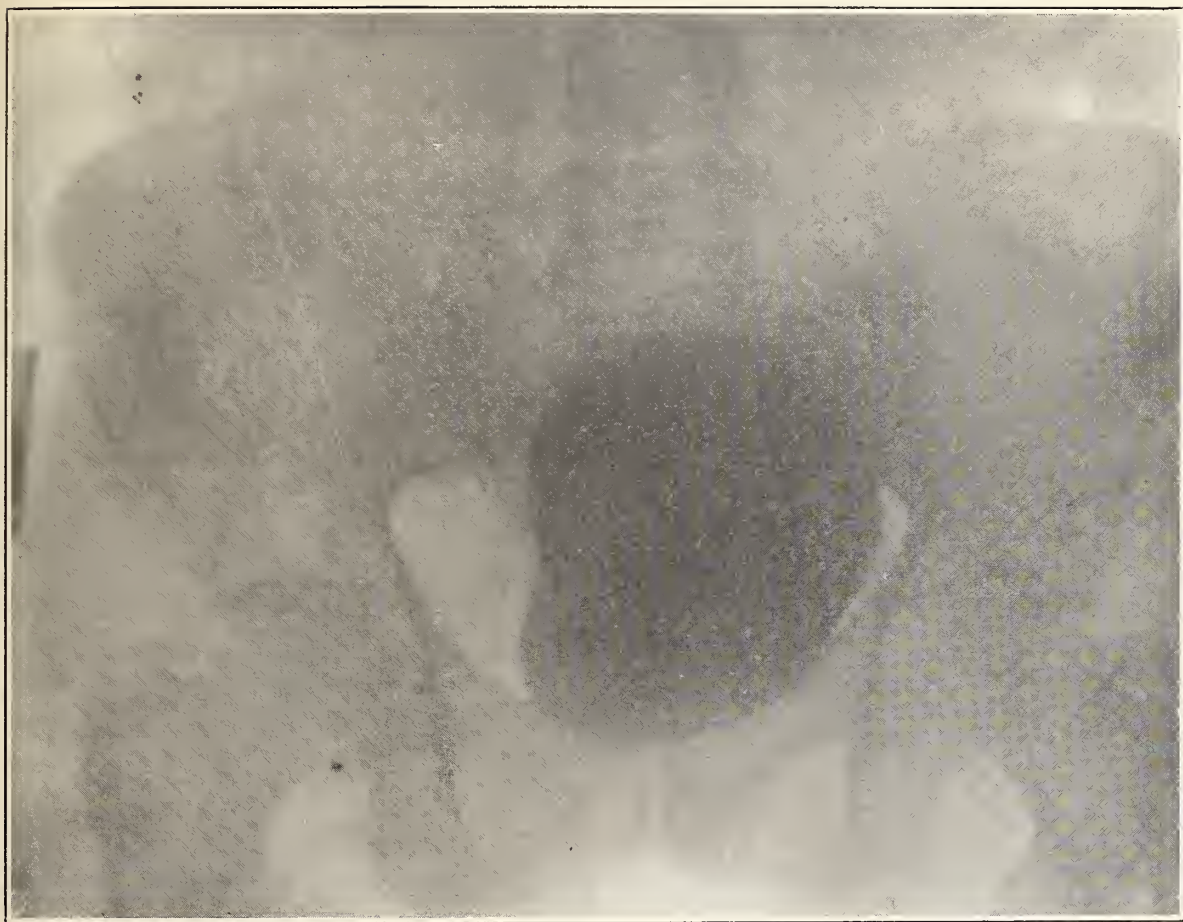


PLATE III showing results eight weeks after operation.

It is probable that a congenital embryological defect of the bladder wall, plus an acquired bladder neck obstruction, were the etiologic factors in the production of the diverticulum. The laboratory report of the wall of the sac shows all normal structures of bladder wall present.

The operative difficulty with resultant fecal fistula, which healed spontaneously, is of interest, and finally the excellent anatomical and physiological result warrant the report.

A Hospital Seeks to Reduce Maternal Death Rate.

The Vassar Brothers Hospital, Poughkeepsie, N. Y., is endeavoring to reduce the maternal death rate in the territory it serves, and calls attention to the record of low infant and maternal mortality rates recently made in Tioga county, N. Y., as a result of an intensive effort by Sheppard-Towner nurses to give adequate prenatal care to expectant mothers. The hospital has set apart one floor for maternity work, and it is offering to semi-private maternity patients who have had adequate prenatal care a special flat rate of \$65, covering all charges. Ward patients are offered a still lower rate on the same basis.—Children's Bureau.

Dr. Noguchi is Dead.

Dr. Hideyo Noguchi, noted bacteriologist, died May 21 at Accra, West Africa, apparently a victim of a laboratory infection with yellow fever, according to a cablegram received at the Rockefeller Institute for Medical Research, of which he was a Fellow.

Dr. Noguchi was a graduate of the Tokyo Medical College, the University of Pennsylvania, and the Serum Institute of Copenhagen, besides holding a number of honorary degrees conferred in recognition of his valuable work.

Dr. Noguchi became an associate at the Rockefeller Institute in 1903 only two years after it was organized and continued as a valued member of the staff until his death. Some of his most noted achievements were his work on snake venom, on the cultivation of the organism of syphilis, the demonstration of its presence in the brain in paresis, and in the spinal cord in locomotor ataxia.

Last November, Dr. Noguchi went to Africa to study the type of yellow fever prevalent on the West Coast. He became infected with the disease but is reported to have continued his study of the disease.

The following statement issued by the Rockefeller Institute which appeared in the metropolitan papers on May 22 will be endorsed by all who knew him:

In the death of Dr. Noguchi bacteriological science has lost one of the most brilliant and original investigators and the Rockefeller Institute one of its most eminent scientific workers and one of its most charming and deeply respected members.—Health News.

RECURRENT MASTOIDITIS (Report of three cases)

HARVEY S. RUSK, M.D.

PUEBLO

Recurrent mastoiditis after operation is ordinarily a rare occurrence, but I had the unusual experience of having, during the past winter, three such cases within three weeks. One of the three I had operated. The time between the first operation and the present attack varied from two to eight years. The onset in all three cases was characterized by its rapidity, in one case passing immediately through the middle ear to evident mastoiditis without middle ear suppuration. This may be explained by the lack of barriers in the mastoid cavity. How the mastoid cavity is filled in after operations is evidently of much importance.

Case 1—A girl, aged 12 years, developed a slight ear ache on the left side while she had a rash suspicious of scarlet fever. Eight years before a mastoidectomy had been performed on the left side. Convalescence had been slow and several weeks passed before the wound completely healed. She had remained under weight but otherwise was in good health and had no symptoms referable to the ears, or the throat. Hearing was good. On examination the temperature was 102. The mastoid wound was not inflamed and tenderness doubtful. The drum was injected but not bulging and the hearing was good. The coincidental scarlet-like rash was thought to account for the fever.

The next day the mother phoned saying the temperature was normal and there had been no further complaint about the ear, and that I wouldn't need to come.

Six days later I was called on the advice of the pediatrician in charge. During the night, pain and swelling had suddenly appeared over the mastoid and there was a distinct fluctuating mass under the skin. This was incised and a large quantity of pus freed. The mastoid cavity was practically free of granulations and bare bone exposed. No dura was evident. The hearing was good and the drum appeared normal except for slight haziness. The cavity quickly became clean but granulations were very slow in filling in the defect and two months were required before the wound was completely healed. Toward the last, healing of a persistent sinus was much hastened by the Zoalite. A depressed scar resulted which took up part of the mastoid cavity.

Case 2—Girl, aged 13 years, came February 11, after about six hours of ear ache, right side. Rupture was spontaneous soon after entering the hospital. The mastoid was not inflamed. In 1922 there had been an O. M. P., again in 1925, and also in 1926 when both ears had abscesses. Healing had always been slow. There was no chronic pathology in the nose and throat. The tonsils and adenoids were removed early. She had always been under nourished and seemed to lack resistance to all infections. After being in the hospital seven days she went home, February 18. Temperature normal, but ear still discharging. On February 26, she returned to Pueblo,

being detained by bad weather. The night before a little redness and swelling started at the lower part of the mastoid wound following an indefinite playful bump. There was fluctuation and free pus on lancing. The wound was dressed daily. Twice it was curetted out lightly but in spite of all attempts filling was very slow and a permanent sinus was forming. March 25, Zoalite was started and in three days the sinus was filled in and the skin closed. The middle ear had been dry some time. The hearing was almost normal.

Case 3—Boy, aged 7 years, started with an ear ache, both sides, the night before. December 18, 1925, there was an abscessed ear, right side, with some mastoiditis. Paracentesis was followed by good drainage. O. M. P. developed in the left ear and in a few days there was a rash and definite scarlet fever symptoms. The scarlet fever cleared up in normal time and the abscessed ears quieted down. January 27 there was a sudden increase of ear symptoms and mastoid edema. Mastoidectomy was performed and the wound was well February 27. The tonsils and adenoids were removed while in the hospital.

On present examination, February, 1928, both drums were bulging and were lanced. There was a large sub-periosteal abscess over the right mastoid. Mastoidectomy was performed. A large cortical perforation was present and a large cavity was filled with pus and with granulations. The dura was not exposed. The wound was healed in fourteen days. There is a tendency in this boy toward chronic sinusitis.

Tendencies of Specialism in Medical Practice.

Members of state examining boards will find much of interest in the article by Dr. Weiskotten on the tendencies of medical practice. The information has been carefully collected and pertains to the graduates of medical schools of the United States for the years 1915 and 1920.

A surprisingly large percentage, 37.9 per cent, of the graduates of both years have already limited their practice to a specialty. Taken separately, the graduates of 1920 show a somewhat greater tendency toward specialization than did the 1915 graduates.

Furthermore, if those not now practicing a specialty carry out their expressed intentions, 73.7 per cent of the 1920 graduates and 66.3 per cent of the graduates of 1915 will soon limit their practice to some form of specialty. A large number of the hospital, teaching and research positions are occupied by 1920 graduates.

The results of this study are rather startling and certainly indicate that there is an increasing tendency toward specialization and the full-time salaried position. This tendency is undoubtedly a reflection of medical teaching during the undergraduate period. The greater importance given to the specialties directs the mind of the student toward an earlier entry into special fields of medical practice. This seems contrary to the principal object or purpose of the medical school to develop a well qualified and intelligent general practitioner of medicine. As this tendency increases it will greatly modify the work and function of the state licensing boards.—Federation Bulletin.

PRINCIPLES OF THE PRACTICAL TREATMENT OF DISEASE

FREDERIC SINGER, M.D.,
PUEBLO

The most valuable of all therapeutic agents are air, water, food, sunlight and rest. One may live without air for a few minutes only, without water for a week or so, without food for thirty to fifty days, without sunlight for months and even years. We commonly lose sight of the fact that rest ranks next to air in importance to the metabolic processes of the human body. The commonest things of life become therapeutic agents when we endeavor to make an intelligent application of some characteristic they may have or may be given, to the cure of disease.

The following case will illustrate the use of air, water, rest, food and paraffin in the treatment of a burn of approximately half the surface of the body. Mr. C. T., 30 years of age, history negative, except that fifteen minutes previous to the time I saw him he had been scalded while removing a plug from a steam boiler. The entire anterior surface of the body from chin to toes with posterior portions on the thigh, calves and back, had been scalded to the first and second degree. Approximately 5 per cent of the entire scalded area was second degree. Upon examination of the scalded area I estimated that the various bullae contained serus exudate to the amount of about one quart. Naturally, with one quart of liquid withdrawn from the general circulation, the man's outstanding condition was one of dehydration, plus severe suffering and shock due to the scalds. I had him drink a quart of warm, tap water. I evacuated the bullae, cut away the skin tags and general debris, and then carefully dried the surface of the scald by thorough, sterile sponging. I then carefully painted the wounded area with warm paraffin, to which I gradually added cotton fibre for reinforcement, being careful not to get the paraffin on uninjured skin surfaces, because paraffin applied to the normal skin will interfere with elimination by the suderiferous glands.

The man was living with his wife in two

furnished rooms which were ordinarily heated by steam. I had the windows and screens removed from a full window on the outside of which I had bleached cotton muslin tacked taut like a drum head, and in the room in front of this window, I directed that a heating stove be placed in order that I might maintain the temperature of the room at 105 degrees, Fahrenheit. I opened the door between the bedroom and the kitchen and the outside kitchen door so that my ventilation might proceed from my muslin drum head in the window, over the stove, circulate around the room, on out through the door into the kitchen and out through the back kitchen door. I recognized the following problems must be solved:

First I must take the load off the kidneys by furnishing sufficient water to maintain a specific gravity of the urine as near zero as possible. I must then double the function of the uninjured sudoriferous glands by maintaining the temperature of the room at one hundred and five and air of a relatively low humidity. I recognized that the diet must be calculated to prevent acidosis or over load, and therefore must be high in carbohydrates and as little as possible, this I solved by giving orange juice and sugar as the patient desired it.

The pain was immediately relieved upon the application of the paraffin dressing, and the patient was resting comfortably. I recognized that the wife, who was to nurse the patient, could not readily learn to determine the specific gravity of the urine, so I took a glass of tap water and set it in the window and gave her another glass with which to take each sample of urine and compare it with the sample of clear water in the glass and to maintain it exactly the same color. When the patient's urine showed the slightest change of color from the water in the glass, the wife was instructed to force the warm water by mouth until the urine again became clear. The patient was regularly wakened at night every two hours and

given such quantities of water as it was found by experience was necessary to maintain the urine at or near zero. I recognized that we were fortunate in having in Colorado, an air, which was ordinarily of a relatively low humidity.

This patient's urine at not time showed evidence of kidney irritation. The water he drank was given at a temperature of one hundred and five, and the air in the room was maintained at one hundred and five degrees continuously for days. In the absence of excellent ventilation, we would have had a rise in the humidity and undoubtedly the patient would have had a heat stroke or in any event would have done badly.

On the evening of the tenth day after the injury, I took this patient in a warm ambulance to a meeting of the Pueblo Clinical and Pathological Society, where I presented him as an illustration of the medical treatment and for confirmation of the large area involved, and the excellent condition of the man. His recovery was prompt and uneventful.

Treatment of Wound Infections by Saturated Sugar Solution

For something over twelve years I have been treating certain types of wound infection by the application of a saturated solution of either beet or cane sugar, with increasing satisfaction.

Something over twelve years ago a man was brought to me at Saint Mary's Hospital from the country where some eleven weeks before he had suffered a penetrating wound of the right knee joint, from a knife which he had employed butchering. He had suffered an infection due to the presence of the staphylococcus aureus on the knife point. And notwithstanding energetic treatment by his local doctor, the articular surfaces of the joint were completely destroyed. His temperature was $102\frac{1}{2}$ and his pulse 138. His sclerae and skin were yellow and he was a very sick man suffering great pain. The slightest jar caused him to complain of an agonizing pain in the knee. I opened up the wound and washed it out with saline solution, and searched the back of my mind for some bland hygroscopic with which to

irrigate the joint, in hope that I might reverse the septic absorption, because the man's condition indicated that he could not live many days as he was. I knew that Murphy had advocated the use of formaldehyde and glycerine, but these I rejected as being too irritating; I then thought of the use of the saturated sugar solution, because of its hygroscopic qualities and use in the preservation of fruit. Following periodical injection of the joint with the saturated sugar solution the infection was soon controlled. The knee became ankylosed at a slight angle which permits him to get about comfortably and to walk without pain or fatigue five or ten miles daily.

In the case of a woman for whom I had done a gastro-enterostomy, who ten days later developed a right-sided femoral phlebitis upon inspection of the abdominal wound I found at the lower angle, a point of infection which I freely opened, obtaining a smear which contained a short chain streptococcus. In the cavity of the reopened wound, I placed a pool of sugar syrup, to which I had the nurse add every two hours enough sugar syrup to completely fill the wound, maintaining continuously the sugar pool. I did this with the object of stopping the absorption which had caused the phlebitis. The patient was kept in bed for a period of six weeks, some four weeks after the wound had completely healed, in order to procure the rest necessary in order that we might completely eradicate the secondary focus of infection in the vein. This patient made a complete recovery and has never had any symptoms of any nature indicating a return of her phlebitis.

Following this experience, in the case of a man who had had a ruptured appendix for a period of about eighteen hours where there had been no walling off or the formation of protective adhesions and a general peritonitis had already begun. After removing the appendix and making the usual abdominal toilet, I inserted a soft rubber drain, sent the man to his room, and as soon as I could make up the saturated sugar solution I had it injected through the tube into the abdominal cavity, to the extent of

its capacity, and had the nurse keep the abdomen full of syrup by injecting some six to twelve ounces every two hours, being careful not to employ much pressure, but rather to cautiously use enough to thoroughly wash out the abdominal cavity, and I was very much pleased to note the immediate improvement in the man's condition. It was surprising to see how quickly the foul discharge from the wound was thinned and deodorized, how freely the wound drained. The man's recovery was prompt and satisfactory. It should be noted that a very careful placement of the drain is very important.

In my later cases I procured a curved, round needle, threaded with a number one, plain catgut of about eighteen inches in length, and stitched through some bloodless, indifferent tissue at the point I wished to put the lower end of my drainage tube, tied a half knot in the catgut and led one strand out through the tube and tied it to the other strand over the outside end of the tube, lightly, being careful not to make pressure against the bowel by the tension of the catgut against the end of the rubber tube, and in turn forcing the inner end of the rubber tube against the bowel which, of course, might cause a fecal fistula.

In all cases of this nature it is important to note that your result will be entirely dependent upon how much of the infected area your sugar syrup reaches. For some years I was of the opinion that the value of sugar syrup in the treatment of infections was due to its hygroscopic quality, and I thought the reversal of the current of absorption and establishing a more perfect drainage, were the chief causes of improvement I had noticed in these cases. I am now of the opinion, however, that while this last factor may be of some value, the chief value of the sugar syrup is that it embalms dead cells and cellular detritus, and the manufacture of toxins by the organisms is arrested. It has become, therefore, to my mind, solely important that the sugar syrup be freely applied to all of the infected area and changed sufficiently often to prevent its dilution.

Sugar syrup is particularly valuable in

the treatment of denuded skin surfaces of large area, because it will readily prevent as well as arrest infections of such wounds. I have been surprised to note the satisfactory closing, without skin grafting, of very large areas which had been completely denuded of their skin covering. It has been my practice in such cases to use reinforced paraffin cells into which the sugar solution is frequently injected, so that it may not become diluted, and in order that the toxic material may be washed out two or three times daily at least.

I have grown increasingly enthusiastic as to the results of my use of sugar syrup in infections, and have been continually experimenting with it. Something over a year ago, I began the use of the saturated sugar solution, containing 2 per cent mercurochrome in the treatment of anterior specific urethritis. I advise its use only in the early, uncomplicated cases of gonorrhea and it is very important to have a thoroughly saturated sugar solution. This I make up by cooking in a double boiler, two and three-fourths pounds of cane or beet sugar, in approximately a quart of distilled or tap water. After this is cooled, I add enough mercurochrome to make a 2 per cent solution and make it fresh for each case. I then instruct the patient to inject with an ordinary clap syringe enough of the solution to comfortably fill the urethra, and then direct him to clasp the end of the penis in such a manner as to hold the solution in the urethra, and massage gently for ten minutes. I instruct him to do this five times daily and to set his alarm clock and get up at midnight and take another injection. Most of the cases are stopped within ten days. The longest in my experience has required three weeks. But in any case, I require the patient to continue the injections for ten days after the arrest of the discharge.

However skeptical one may be about the use of sugar syrup in the treatment of infections, I feel safe in saying that after his use of this method in the treatment of early cases of gonorrhea, he will be inclined to modify his opinion.

I have specifically advised that he should

make his solution fresh for each case to the amount of six or eight ounces, and that he see that his directions to the patient are duly carried out.

I advise the patient to drink water freely and to live as nearly as possible on milk and toast, to avoid for a few days very fatiguing work and particularly to carefully avoid becoming chilled. Boys and men of small urethral capacities must be strictly warned not to overfill the urethra with the solution, because if it is forced back into the bladder a vesical irritation will be set up which, while not serious, will be very annoying for some days.

At my suggestion a number of my medical friends are employing this method of the treatment of early, uncomplicated cases of gonorrhea and have reported to me their opinion that the treatment, as outlined, was a definite improvement over older methods.

For thirty years I have been treating tonsillitis, septic sore throat and the sore throats of scarlet fever and diphtheria, combined in the last two instances with antitoxin, having used the antitoxin for scarlet fever for about two years and in diphtheria for over thirty years. I direct the patient to fill an atomizer with equal parts of peroxide of hydrogen and Silars alkaline antiseptic solution, borol or glycothymolene, and to spray his throat thoroughly every thirty minutes to an hour while he is awake, remain in bed and keep warm, drink warm water freely and endeavor to maintain the urine at a specific gravity of approximately 1.005. I advise him to take every four hours a powder, containing true sodium salicylate and some coal tar preparation such as atophan every four hours. The dose to be regulated in accordance with individual requirements of the patient. I use enough of the sodium salicylate to secure a moist skin and enough of the coal tar preparation to give the patient a sense of well-being.

I have tried peroxide of hydrogen alone sprayed in the throat every thirty minutes to an hour while the patient is awake, many times. It has always proved too irritating and in my hands has been of practically no value whatever. I believe that its value mixed with an alkaline antiseptic lies in its

ability to remove without irritation, the plugs in the crypts of the tonsillar tissue, located entirely in the tonsillar mass or in scattered islands in the pharynx.

It has been my habit to use this solution in spraying the throats of all my cases of rheumatism, chorea and in any case which appears definitely to follow on absorption from any focus of infection in the throat. In all cases of chronic or acute focal infections which for one reason or another may not immediately be found or eradicated, if the patient is treated by rest, low balanced diet, and the urine maintained at a specific gravity, at or near zero, by the urinometer by large, warm water intake; usually an early improvement will be noted. Apparently hopeless cases may readily be prepared for an operation which may completely restore them to health. Occasionally one sees a case in which the improvement is slow and the regime just described must be determinedly continued for a period of weeks or even months before the desired result may be obtained.

I have under observation a man in whom I have secured an arrest of a very severe angina pectoris. He has not had an attack in nearly two years, gets about freely and does some light work, has no shortness of breath or other evidence of serious heart involvement. For nearly three years he followed the regime outlined and drank ap-warm water daily. I treat my hypertension cases after this method, modified somewhat to fit the individual case requirement, giving most of them short weekly or monthly fasting periods in accordance with the needs of weight reduction, and the control of septic foci.

An adequate discussion of body weight reduction to the extent of twenty-five pounds, would require more space than is given my entire article. First the patient must be thoroughly sold on the enterprise, and the physician will require all the tact and psychology at his command. The reduction of the first ten pounds is comparatively easy; the last five of a fifty-pound reduction is one of the most difficult feats I have ever achieved.

I employ a practical plan which works very well. I make no attempt to figure the calories consumed by the patient daily, but check him entirely in accordance with his daily loss or gain. I permit him to have in the morning a piece of Roquefort cheese the size of the two last joints of his little finger, and one Saratoga wafer cracker and a small cup of black coffee without cream or sugar.

On alternate days, for supper I allow, in addition to the fruit juice, one to four ounces of lean boiled beef or first quality canned salmon. I instruct the patient to carry in his pocket, various flavors of life-savers, the little rolls of candy which can be purchased for a nickel each, and instruct him to use the following flavors—orange, lime, lemon, cinnamon, clove and licorice. He may use them between meals freely as he desires, provided he does not masticate them, but rather lets them dissolve slowly in his mouth. Once each week I allow the patient to eat a full meal of any amount and kind that he may desire, and then to fast eighteen hours before resuming his regular regime again. I direct these patients to report to the office two or three times a week with a fresh sample of urine, and to carefully follow through on the use of large quantities of warm water during each day.

It is interesting to note how well most of these patients do on the diet as outlined. By this method I have reduced innumerable patients to the weight correct for their age and height, but of late years I advise a return to a weight, normal for their height at the age of 21, as in my experience patients following this plan enjoy better health and take more exercise.

It is important to recognize that when a patient is reducing during the winter months he must be kept under very careful observation. If he is not carefully watched and kept strictly warm, his resistance will be reduced and in one way or another he will do badly. He must not become chilled or over fatigued. When reducing during the winter months the patient should be instructed to wear overshoes and thick-soled shoes, heavy underwear and general clothing, in order that

he may be adequately protected from the cold.

Once these patients have been thoroughly imbued with the spirit of the game they will usually enthusiastically follow through and derive great benefit and comfort from their improved condition. As a result of increasing experience it has become possible for me to estimate the character of man's "native hue of resolution," and I make upon him a sufficient psychological impression to furnish him the drive required to get him by during the intervals between his calls at my office. It is frequently necessary to revive his lagging spirits, to revive his interest in the game, but for the most part it can be successfully managed. In some of these patients there seems to be no driving power whatever. Their enthusiasm soon ebbs away and they require such a continuous amount of reviving that they fail to achieve anything worth while and become a chronic nuisance. I have learned to spot these people early and by so doing have saved myself a lot of wasted effort. When the final day of the weight reduction period has arrived, and we find by the scales that the weight previously determined by me has been attained, I congratulate the patient and instruct him to return from time to time to my office in order that I may check him up. I definitely impress upon him the fact that if he will maintain his weight for three months at that correct for his height at age 21, he will then note that he can eat quite freely of a general, varied diet without increase of weight, provided he has the proper amount of exercise, because his metabolic processes will have become stabilized and he will have developed an appetite normal for the weight decided upon.

In cases of cerebral hemorrhage, cerebral embolism, hemorrhage into the vitreous, the spleen, pancreas or any other organ where an early absorption of the extravasated blood or emboli is of first importance, I know of no method comparable in my experience with the fasting regime definitely maintained for a period of from fifteen to twenty-five days, depending entirely upon the condition of the patient. In such cases

I also carefully supervise a tidal intake of water. By this I mean that I give such patients from one pint to one quart of warm water at three-hour intervals, with the object of causing an ebb and flow of fluid into and out of the traumatized tissue at frequent intervals during the twenty-four-hour period. I employ a diet very similar to the one discussed in the treatment of patients who are overweight, except that I allow fresh juices and sugar during the day as desired, and one Saratoga wafer cracker with a cup of coffee, containing the usual amount of cream and sugar.

I am well aware that practically all men having had experience with cases of embolism and particularly pathologists, may by time be seen waving their hands in horror at the very idea that one can cause the absorption of an embolus or restore the function to a plugged artery; and this is not at all what I am trying to say. However, it happens, under this regime I have been able to offer a greater degree of improvement than by any other method of which I have knowledge. The absolute rest in bed which I have prescribed, the withdrawal of the tobacco, the tidal intake of water, the limited diet; all tend to promote the rapidity with which the traumatized tissues are cleaned up. My answer to any critic of this method of treatment is another question, "What else would you do?"

Ordinarily such cases are treated in a haphazard, nerveless manner, and the patient is left largely to shift for himself or to drift into the hands of some charlatan. I do not promise them much, but I assure them that if they will follow through I will be able to give them the best that can be promised to them. I call their attention to the folly of chiropractic and osteopathic treatment and all various and sundry forms of electrical treatment.

In the cases of cerebral hemorrhage where there is much pressure, I am, of course, very cautious in the use of water. I sometimes withhold it for hours, until the patient has had an opportunity to recover from the shock of his hemorrhage. I lay particular stress on the value of fresh fruit juices and

sugar to the patient. I advise the use of heliotherapy, cautiously given and make search for foci of infection, which I have found are important factors in the causation of this syndrom.

I recently had the misfortune to lose one of my star cerebral hemorrhage cases in an automobile accident at Fort Collins. This woman, some eight years ago had a cerebral hemorrhage, and when I saw her some time afterwards she was unconscious, had a blood pressure of 232/140. I had her taken to the hospital where I fasted her for eighteen days and where she shortly regained consciousness and then exhibited a paralysis of the left side of the tongue and face, together with a partial anesthesia of the left side of the face. Her speech was partly blurred, although I could detect no definite aphasia.

Her improvement during the fasting period was slow but definite and I had her under my care until the time of her death, eight years later, at the age of 78. For approximately the last six years of her life, her blood pressure was normal, her speech was clear, she had fully recovered from her facial paralysis and sensation had completely returned. A few days before her accidental death I received a letter from her requesting me to make arrangements with an oculist for the removal of two cataracts which had been troubling her for some time.

After many years' experience with this method, the average results have been a great improvement on other methods and I have had an occasional brilliant result which alone, has made it all seem worth while. The chief factors in the cause of disease in these cases, particularly diseases of the arteries, are overeating and the presence of foci of infection, dyscrasia, vitamin deficiencies and so forth; these I should like to discuss at some length, but because of lack of space I must pass on to the discussion of the use of epinephrin in the treatment of hayfever, asthma and anaphylactic reactions to infections.

Some years ago I was called to treat a patient who had broncho pneumonia following influenza. He had been for some years a victim of hayfever and severe asthma, and he was seriously ill. In the course of his ill-

ness he had several severe pulmonary hemorrhages, some of which required morphine and ether to control. Following this and some other minor complications, he developed bronchiectasis of a severe type, expectorating three pints to two quarts of very foul smelling sputum daily. Postural drainage was at once instituted and intra-muscular injection of epinephrin in ten to fifteen minimum doses every six to eight hours until the patient had fully recovered.

I am accustomed in certain types of acute and chronic infections in which an anaphylactic factor is involved to mix with my pollen or other antigen, epinephrin in doses of five to fifteen minims, this I inject into a muscle daily, because, probably of the slow absorption, I get no anaphylactic shock whatever. Using sometimes ten or fifteen times the usual dose of antigen combined with 1 c. c. of epinephrin without deleterious effect; in fact, in most instances with marked improvement.

In eight cases of asthma I have had excellent results. Two of these cases had been unable to work and practically bed-ridden for some months. All have been at work now for different periods of from three months to a year without return to symptoms. In many cases of asthma I believe there is a combined pollen antigen and bacterial antigen factor, and in this type of case it has seemed to me that with the arrest of either the pollen or bacterial factor as a cause of the combined anaphylaxis, the asthma is arrested. I am satisfied that in occasional cases both factors must be eliminated before the case can be cured. I am making this as a preliminary report and am continuing my experiments.

Some twenty-five years ago a distinguished Colorado surgeon called my attention to the treatment of vesiculitis by vesicular or prostatic massage. This work has been one of increasing interest to me. The correct technique of milking the seminal vesicles is difficult to learn, but once acquired the results obtained by treatment of properly selected cases will be of outstanding benefit to the physician and his patients.

Many of these cases develop a definite psy-

chosis; they have given up the fight, have completely lost their grip, are continually blue and discouraged, are frequently impotent, at least for considerable periods, and if potent, may have been sterile for years. Some of them threaten suicide; others are so depressed and melancholy that they take little if any interest in life. Some of them for months and years have had vague pains in the back, loins and legs, an occasional case may develop severe mediastinal or head pains or vague aches located more or less indefinitely in the body. The results obtained in practically all of these cases where energetic treatment has been continued two or three times each week for a period of seven to fifteen months or even longer is definite, even brilliant. Frequently following his recovery the gratitude of the patient knows almost no bounds.

I know of no type of case in medical work, the correct treatment of which will redound so much to the financial and professional credit of the physician, or of such everlasting value to the patient as vesiculitis.

Eleven Millions for Public Health and Medical Education.

In a review of the work of the Rockefeller Institute for 1927 Dr. George E. Vincent, its president, reports that over \$11,000,000 was disbursed during that year. Some of the public health projects promoted in the United States were:

Aided local health organizations in 85 counties in six states in the Mississippi flood area.

Operated an emergency field training station for health workers in flood area and nine other training stations elsewhere.

Assisted nine schools or institutes of public health and three departments of hygiene in university medical schools.

Had a part in malaria control demonstrations or surveys in eight southern states.

Contributed to the health budgets of 268 counties in 23 states.

Helped to set up or maintain public health laboratory services, or divisions of vital statistics, sanitary engineering or epidemiology in state health departments in 16 states.

Made grants for mental hygiene work.

Provided funds for biological research at three American universities.

Medical Progress, a Journal for Laymen.

The American Association for Medical Progress has undertaken the publication of a quarterly, *Medical Progress, a Journal for Laymen*, as a means of bringing members of the Association closer to the staff and of effecting a wider diffusion of facts. Benjamin C. Gruenberg, 370 Seventh Avenue, New York, is editor.

NEWS NOTES

The semi-annual meeting of the Arkansas Valley Medical Society was held May 25, 1928 at The United States Veterans Bureau Hospital No. 80, Fort Lyons, Colorado. Doctor J. F. Wallace, Medical Director of the hospital, and Dr. A. J. Campbell, President of the Society, and one of the Staff, cooperated in providing the Society one of the most profitable and pleasant days it has ever spent.

The morning was devoted to Clinics and Demonstrations by the Hospital Staff. The afternoon program was devoted to the reading of papers as follows: Dr. J. R. Blalock (in absence of Dr. H. A. LaMoure of Woodcroft Hospital, Pueblo), "Dementia Precox"; Dr. B. F. Blotz of Rocky Ford, "Infections of the Hand" (with motion pictures). The Hospital Staff then presented a Symposium on Tuberculous Enteritis: Dr. A. J. Bondurant discussed "History, Clinical Symptoms, and Diagnosis"; Dr. R. P. Jones discussed "Roentgenological Diagnosis"; and Dr. F. C. Cassidy discussed "Treatment." The program was followed by a delightful banquet and dance. During the afternoon the visiting ladies were given a complimentary bridge party by the ladies of the Fort.

National Hospital Day was observed in each of Pueblo's three general hospitals, St. Mary's, Minnequa, and Parkview, on May 12. Open house was observed during the afternoon, musical programs rendered, and refreshments served. The special and most successful feature was the homecoming of a large number of the babies to the hospitals in which they were born.

The Pueblo County Medical Society completes the first half of the year with a just pride in the calibre of the programs so far. In addition to many well prepared papers by its own members there have been three from men in neighboring cities. On April 17, Dr. Harry F. Wear presented "The Management of Renal and Ureteral Calculi". On May 15, in a joint meeting with The Pueblo County Public Health Association, Dr. Bernard J. Murphy, director of the Bemis-Taylor Foundation for Child Guidance, of Colorado Springs, read a paper on the subject: "The Technique of the Psychiatric Examination in a Child Guidance Clinic." He prefaced his paper by some remarks on the work being done in his particular clinic. During the year there have been presented two Symposiums, one on "The Surgical Treatment of Peptic Ulcer," and one on "Acute Rheumatic Fever."

The Woodcroft Hospital has recently been sold by Dr. C. W. Thompson to a group of Pueblo physicians. The officers of the new association are Dr. Crum Epler, pres., Dr. Fred M. Heller, vice pres., Dr. Harold T. Low, secretary, Dr. H. A. LaMoure, formerly Superintendent of Colorado State Hospital, has been appointed Superintendent, and Dr. J. R. Blalock as Resident Physician. It is the intention of the new owners to erect a new Receiving Building, and to introduce many other new improvements.

The Colorado State Medical Society was represented by Dr. Thomas E. Carmody and Dr. O. M. Gilbert in the House of Delegates of the American Medical Association which met in Minneapolis, June 11-14.

It was reported that a very large number of Colorado physicians attended the scientific program of the Association. The next meeting place will be held in Portland.

Dr. Arthur H. Earley was elected vice president of the American Proctological Society at the June meeting in Minneapolis. Dr. A. J. Chisholm who has been an Associate in this organization was made a Fellow.

Dr. E. V. McCollum, Professor of Biochemistry, School of Hygiene and Public Health, Johns Hopkins University, addressed the Denver County Society in special session June 15th. The meeting was fairly well attended and the address was of great interest in regard to the present status of our knowledge of dietetic factors.

The following physicians of Colorado attended and addressed the New Mexico Medical Society which held its annual meeting in Albuquerque last month: Drs. Robert G. Packard, O. S. Fowler, A. J. Markley, H. W. Snyder, and Sanford Withers.

The University of Colorado School of Medicine conferred the degree of Doctor of Medicine on thirty-six students at the regular commencement exercises.

The annual smoker of the senior class was held in the Medical School, June 4, 1928. It is known as the senior faculty smoker and is a school event of growing significance.

The American Society for the Study of Goiter held its annual meeting in Denver, June 18, 19 and 20. This Society was the guest of the Denver County Medical Society. The meeting was well attended and included among its speakers representative men from the leading goiter clinics of America. The scientific addresses of Professor B. Breitner of Vienna and Gulbrand Lunde were of unusual interest. Dr. Henry Plummer reiterated his position on the adenoma of hyperthyroidism and the toxic goiter of the exophthalmic type. The Canadian speakers were Drs. H. D. Kitchen of Winnipeg and Dr. J. K. McGregor of Ontario. Dr. S. D. Van Meter of Denver was elected president of the Association for the coming year and Dr. E. R. Arn of Dayton, president-elect.

The fourth annual dinner of the Denver Health Council was held at the Cosmopolitan Hotel, June 8, 1928. While Dr. Wm. F. Walker, Field Director American Public Health Association, the speaker of the evening, was unavoidably delayed, the occasion was made pleasant and profitable by the fitting responses of Drs. Sewall, Waring and others. Dr. Bertrum Jaffa presided. The Health Council seems all ready to have aroused considerable interest in the community problems of health.

The Inter-State Post Graduate Assembly of North America will meet at Atlanta, Ga., Oct. 15, 16, 17, 18 and 19, 1928.

THE AMERICAN BOARD OF OTOLARYNGOLOGY

Omaha, Neb., June 20, 1928.

An examination was held in Minneapolis, Monday, June 11, 1928. Forty-nine applicants were examined—forty-six being granted certificates.

The board will hold an examination in New York City, Friday, Oct. 12, 1928, and in St. Louis, Monday, Oct. 15, 1928.

Those wishing to come before this board, please advise with Dr. W. P. Wherry, Secretary, Omaha, Neb.

H. P. MOSHER, M.D.,

President.

MEDICAL SOCIETIES

DELTA COUNTY

The regular meeting of the Delta County Medical Society was held in Delta on May 25, 1928. Following a 6:30 o'clock dinner at the Delta House the members met for the scientific program at Dr. Cleland's office.

Members present were Drs. Lewis, Smith, Day, Cleland, Myers, McClanahan, Hick, Erich. Among the correspondence was literature sent out by the Committee on the Cost of Medical Care. This movement was discussed and favorably commented upon by the members.

Dr. Lewis presented an excellent paper on "Polio-myelitis." Sporadic cases occurring in Delta county have been reported by several members and a review of this subject was well received.

May 25th was not an especially good time to hold a medical meeting as we were unfortunate to have some so-called "fishermen" in our ranks. They were "Somewhere-on-the-Gunnison," but probably wished they were back in Delta dutifully attending their county meeting.

LAWRENCE A. HICK,
Secy.

WOMAN'S AUXILIARY NOTES

The San Juan County Medical Society and the Woman's Auxiliary of that organization will hold a joint meeting in Mesa Verde the first of July.

Intelligence Tests for the Blind.

The U. S. Children's Bureau reports that during the last ten years, intelligence tests adapted for blind children have been given in more than half the schools for the blind in the United States. The Pennsylvania Institute for the Blind in Pennsylvania and the Perkins Institute for the Blind in Massachusetts have undertaken experimental studies in the psychology of the blind, in the hope that such research will ultimately do for the education of the blind what is being done for the general educational system of the country, through the classification of students according to ability, the diagnosis of their individual difficulties, and vocational guidance.

Employee Health Studies Show Costs of Illness.

Various public bodies have recently been conducting studies of health in industry with a view to reducing the business loss caused by the illness of workers, as well as with the more humane object of finding means to promote the good health of the workers themselves. Estimates of cost of illness vary from one given by an electrical service company at \$28.50 per employee per year to one of a manufacturing concern estimating a loss of \$125. A large store found that employees with what are considered minor physical defects such as bad teeth, defective eyesight, too much or too little weight, have a loss of 12% more time than employees in first-class condition.

A store employing 4,000 people installed medical supervision and in the second year saved about 8,000 working days. About 16,000 days were saved in the third year. A special campaign against colds resulted in a reduction of 3,143 cases, with a saving of 5,495 working days, and thereby saving the employees \$16,814.70 in wages.

Smallpox in the United States and Canada, 1927

Three thousand, five hundred eleven more cases of smallpox were reported in comparable areas of the United States and Canada in 1927 than in 1926; but the number of deaths was reduced from 358 in 1926, to 146 in 1927, and the case-fatality rate declined from 1.2 deaths per 100 cases to .4 deaths. This is the lowest case-fatality rate on record for both countries. In seven Canadian provinces case reports of smallpox more than doubled in 1927 as compared with 1926; but, very fortunately, the disease proved to be so much less virulent that the case-fatality rate declined from .8 to .2. This, with a single exception, is the lowest lethality figure on record for smallpox in that country.

There were, it is true, a number of outbreaks, some of which necessitated the closing of schools—more especially to students who had not been vaccinated. Inasmuch as the smallpox which prevailed was unusually mild in type, the ultimate effect of some of these outbreaks may be good; for reports from a number of communities state that large numbers of persons were sufficiently alarmed to cause them to resort to vaccination. It is still unfortunately true that hundreds of thousands of Americans and Canadians will not avail themselves of the only known safeguard against smallpox until a grave situation arises and the urge of sheer fright is felt.

It would seem from the figures that real progress is being made in controlling this disease. But, with smallpox, we have learned that a year of favorable conditions may be followed by a serious increase—either in the number of cases, or in the virulence of the disease, or both. The combination of a small number of cases and a low virulence is apt to give a false sense of security. Many persons then seem to think that there is no further cause for fear—that they are through with smallpox, and that there is no need to have their children vaccinated or themselves revaccinated. The result is an unprotected population; and a case of smallpox coming into the community is like a match thrown into a tinder pile. There are numerous examples of how a smallpox situation may change in a single year. In Denver, Colo., for example, there were no deaths from smallpox in either 1919 or 1920; but in 1921 the disease appeared in virulent form, with 46 deaths in 924 cases. In Kansas City, Kan., where no deaths resulted from a small number of cases in 1919 and 1920, there were 15 deaths in 267 cases, in 1921.

Last year there were only 146 deaths in forty states.—Statistical Bulletin, Metropolitan Life Insurance Co.

Why He Was Worried

The train came to a sudden stop between stations with a tremendous grinding of brakes. Immediately a worried-looking man rushed down the track and demanded the reason of the guard.

"What is it?" he asked. "An accident?"

"Somebody pulled the communication cord," was the reply. "The driver put on the brakes too quickly, and one of the cars went off the rails. We'll be held up about four hours."

"Four hours!" exclaimed the passenger. "But I'm to be married today!"

Instantly the guard turned on him.

"Say," he demanded, "you ain't the fellow who pulled the cord, are you?"

NEW BOOKS

- A Manual of the Practice of Medicine:** Prepared especially for students by A. A. Stevens, A. M., M. D., Professor of Applied Therapeutics in the University of Pennsylvania; Visiting Physician to the Philadelphia Hospital, Twelfth Edition, revised. Philadelphia and London: W. B. Saunders Company, 1928. Cloth \$3.50 net.
- Diabetes, Its Treatment by Insulin and Diet:** A Handbook for the patient by Orlando H. Petty, A. M., M. D., F. A. C. P. Professor of Diseases of Metabolism, Graduate School of Medicine, University of Pennsylvania; Physician in charge of Department of Diseases of Metabolism, Hospitals of the Graduate School of Medicine, University of Pennsylvania, and Philadelphia General Hospital; Consultant in Diseases of Nutrition and Metabolism, Shriners' Hospitals for Crippled Children, Philadelphia Unit. With illustrations and tables, Fourth Revised and Enlarged Edition. Philadelphia; F. A. Davis Company, publishers, 1928.
- The Ultra-Violet Rays, Their Action on Internal and Nervous Diseases and Use in Preventing Loss of Color and Falling of the Hair:** By Arnold Lorand, M. D., Vienna, Physician at the Carlsbad Springs, Czecho-Slovakia. Philadelphia, F. A. Davis Company, publishers, 1928. Price \$2.50.
- The New York Academy of Medicine, Lectures on Medicine and Surgery.** First series, 1927, with thirty-nine illustrations. Paul B. Hoeber, Inc., New York, 1928. Price \$5.00.
- The Principles and Practice of Obstetrics:** By Joseph B. DeLee, A. M., M. D., Professor of Obstetrics at the Northwestern University Medical School; Obstetrician to the Chicago Lying-In Hospital and Dispensary, and to Mercy Hospital; Consulting Obstetrician to Provident and Evanston Hospitals, etc. With 1128 illustrations on 923 figures, 201 of them in colors. Fifth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1923. Cloth \$12.00 net.
- The Medical Clinics of North America** (Issued serially, one number every other month.) Volume 11, Number 6, (Mayo Clinic Number, May 1928). Octavo of 330 pages with 89 illustrations and complete index to Volume 11. Per Clinic Year, July 1927 to May 1928. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.
- The Surgical Clinics of North America** (Issued serially, one number every other month.) Volume 8, Number 2. (New York Number, April 1928) 256 pages with 90 illustrations. Per Clinic year (February 1928 to December 1928). Paper \$12.00; Cloth \$16.00. Philadelphia and London: W. B. Saunders Company.
- A Text-Book of General Bacteriology:** By Edwin O. Jordan, Ph. D., professor of Bacteriology in the University of Chicago and in Rush Medical College. Fully illustrated. Ninth edition, thoroughly revised. W. B. Saunders Company, Philadelphia and London, 1928. Cloth \$6.00 net.
- The Allen (Starvation) Treatment of Diabetes,** with a series of Graduated Diets, by Lewis Webb Hill, M. D., Junior Assistant Visiting Physician, Children's Hospital, Boston; Alumni Assistant in Pediatrics, Harvard Medical School, and Rena S. Eckman, Dietician, Massachusetts General Hospital, Boston, 1911-1916. With an introduction by Richard C. Cabot, M. D. Fourth

edition. Boston; W. M. Leonard, publisher, 1921.

The Healers: By B. Liber, author of "The Child and the Home," "As a Doctor Sees It," "Sexual Life"; Editor of Rational Living. Published by Rational Living, Post Office Station M, Box 2, New York City, 1928.

Gonococcal Urethritis in the Male, for Practitioner: By P. S. Pelouze, M. D., Associate in Urology and Assistant Genito-Urinary Surgeon at the University of Pennsylvania; Fellow of the Philadelphia College of Physicians. Illustrated. Cloth \$5.00. Philadelphia and London: W. B. Saunders Company, 1928.

Mechanics and Chemistry of the Human Body (A Sequel to "Colonic Therapy"). O. Boto Schellberg, New York City. Published by the Schellberg Institute, Inc., 24 East Forty-eighth Street, New York City.

Affections of the Stomach: By Burril B. Crohn, M. D., Associate Attending Physician to the Mt. Sinai Hospital, New York City; Member of the American Gastro-enterological Association; Member of the New York Academy of Medicine; Society for Experimental Biology and Medicine; Associate Member of Harvey Society; Consulting Physician, United States Veterans' Bureau. With 361 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company. Cloth, \$10.00 net.

Practical Clinical Psychiatry for Students and Practitioners: By Edward A. Strecker, A. M., M. D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia; Clinical Professor of Psychiatry and Mental Hygiene, Yale University; Medical Director, Pennsylvania Hospital, Department for Mental and Nervous Diseases; Director, Neuropsychiatric Clinic, Pennsylvania Hospital, Department for Sick and Injured; Attending Neurologist to the Pennsylvania, Jefferson, Philadelphia, Misericordia and Germantown Hospitals; Consulting Psychiatrist to the Children's Bureau, to Bryn Mawr College, to the U. S. Veterans' Bureau, etc., and Franklin G. Ebaugh, A. B., M. D., Professor of Psychiatry, University of Colorado Medical School; Director Colorado Psychopathic Hospital; Consulting Physician Children's Hospital and National Jewish Hospital, Denver, Colorado; formerly Director of the Neuro-Psychiatric Department, Philadelphia General Hospital; Clinical Professor of Psychiatry, Woman's Medical College, Philadelphia and Instructor of Psychiatry at the Undergraduate and Graduate Schools of Medicine, University of Pennsylvania. Second edition, enlarged and revised. With illustrations. Philadelphia: P. Blakiston's Son and Company, 1012 Walnut Street.

An old farmer who had never listened to a wireless set was persuaded to don the headphones.

"You don't know what you're missing, uncle," said his nephew. "It's a wonderful invention. Got the ear-pieces right? Well, then, I'll just switch on the—"

Suddenly there was a splitting, crackling streak of lurid lightning, followed by a peal of loud thunder. The old farmer sprang up out of his chair and fell on the floor. He came too half an hour later.

"Good heavens!" were his first words. "Maggie—and she's been dead thirty years!"

Salesman (giving driving lessons): "Choke it! Choke it!"

Little Bonde: "Where's its neck?"

WYOMING MEDICINE

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EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

THE TRI-STATE MEETING IN THE YELLOWSTONE NATIONAL PARK

The gathering of the physicians, surgeons and specialists of Idaho, Montana and Wyoming, August 27, 28 and 29, promises to be one of the outstanding treats of 1928.

That such a meeting could be arranged speaks volumes for the true western spirit of the doctors of these states.

The program consists entirely of doctors who are the outstanding leaders of the profession over the entire United States. Not an Idaho, Montana or Wyoming man is on this program, save the president of each state who delivers his presidential address. We are to listen and discuss, others are to lead, we to learn, clinging to the new truths we shall grow stronger in our own daily work.

It is certain that this gathering will cement the ties of friendship of the physicians of the great states into a closer union and it will, no doubt, lead the way for similar meetings in the years to come, and is surely a move in the right direction.

This meeting is but the beginning, and in the future such meetings in such a wonderful meeting place will become a source of the profit and pleasure, just as the Greeks used to meet at Athens and other good centers in the early days of civilization, here will gather the great teachers of medicine and in nature's wonderland will the masses of physicians come to learn and play.

Such a personal contact with the leaders of the profession can only have one result, and that must be better physicians and surgeons for the coming generation.

The three mornings will be filled by some

of the greatest teachers in the medical profession.

All of the speakers are men of national reputations and there is not one on this wonderful program that any physician in Idaho, Montana and Wyoming can possibly afford to miss his every word.

Let the medical world understand that these meetings are not limited to the doctors of these states alone, but every ethical doctor is welcome to attend.

The program committee are deeply indebted to the editor of the American Medical Journal, Dr. Morris Fishbein of Chicago, for securing the attendance of many of these great teachers, and we thankfully acknowledge his great assistance.

The wives of these western doctors always enjoy our state medical meetings and as the years go by form most pleasant friendships from attending. No one can doubt that this tri-state meeting will mean just as much to them as it will to their husbands, and every doctor owes it to his wife to bring her along and give her the best time of her life.

Let's go and make this our finest vacation and play time.

Physicians need such a vacation, and nowhere in the United States is there such a wonderful playground, away from the crowds of the cities, and seaside resorts, out among the grandeurs of the Rocky Mountains at the very edge of the most beautiful canyon in the world, will we gather and here will commune with nature and nature's God. Here we will learn and play, and when we return to our homes we will be better doctors, full of vigor and thankful for the tri-state Yellowstone Park meeting.

Send your reservations in today to the

Yellowstone Park Hotel Company for the Canyon Hotel accommodations you desire. If, however, you prefer to sleep in comfortable heated tents, write to the Yellowstone Park Camps Company at Yellowstone, Wyo.; or you may, if you wish, pack up your own

car with your own camping outfit and live next to nature to your heart's content.

The important thing is to decide today that you are going and take your wife along. Have a real vacation and a feast for your medical soul.

Read the program in this issue. E. W.

TREATMENT OF PEPTIC ULCER AND ITS COMPLICATIONS*

LAWRENCE L. McLELLAN, B.S., M.D.,
CASPER, WYOMING

The simple and unqualified diagnosis of peptic ulcer in a patient is only a partial diagnosis and is wholly inadequate to the physician for the proper care and treatment of that patient. While it is essential that a gastric ulcer be differentiated from a duodenal ulcer, it is equally as important to determine the complications, so that each case will be a distinct entity. The presence or absence of certain complications may render certain types of treatment mandatory, and the failure to recognize them will be productive of considerable trouble. The decision which must so often be made between surgical intervention and medical management must never be made arbitrarily on the general merits of either one but upon the basis of which type is most likely to benefit the particular patient most.

It is my intention to take up the various complications of peptic ulcer and to discuss briefly how each one may influence the choice of treatment, although I fully realize that it is a question on which there is a wide diversity of opinion. In discussing treatment I will leave out all purely economic considerations, and I do not propose to go into any technical details regarding surgical procedures. In passing, it is interesting to note that there is a tendency among some surgeons to supplant the older procedure of gastro-enterostomy by a partial gastrectomy of the Billroth or Polya types, or their modifications.¹ Deaver² recommends it in all cases of gastric ulcer, but it is not yet time for any conclusions to be drawn either for or against it. In

general it should be remembered that the patients seen by surgeons in the great clinics are those who have had symptoms over a long period of time, or who have had some of the more severe and life-threatening complications; consequently the measures proposed by such clinics for the cure of peptic ulcer may not be applicable to the patients of a general practitioner. He is more likely to see these patients in the early stages when the relatively more simple methods of treatment may be indicated. I propose to go into further detail in regard to the medical management of peptic ulcer, because all of us are continually seeing patients who can be cured by a well directed ulcer regime. It must be borne in mind that there is no set regime for the medical management of all ulcers. Each one must be treated as an individual case. In no instance will the actual diagnosis of the ulcer or its complications be considered.

Carcinoma as a complication will be discussed first. The only treatment is a surgical removal of the neoplasm. Early diagnosis, however, is essential if an operation is to be of any real value, and I wish here to emphasize the importance of regular examination of all stools from such patients for the presence of occult blood. Its presence under proper dietetic regimen is one of the earliest manifestations of a malignant gastric lesion.³

Perforation of a peptic ulcer into the general abdominal cavity may be either acute or subacute, and in the acute cases, with a rapidly developing peritonitis, surgery is an immediate necessity. Unless the perforation is repaired, these cases seldom live more than a few days. At operation, the leak

*Read before Natrona County Medical Society, May 14, 1928.

should be closed tightly and a gastro-enterostomy performed if the patient's condition will permit it.

In subacute perforations where the ulcer is slowly eroding its way through the wall of the stomach or the duodenum, either intra or retro-peritoneally, and there is sufficient inflammatory tissue formed to prevent a generalized peritonitis, the treatment may well be medical. These cases are usually complicated by a perigastritis, periduodenitis, or chronic pancreatitis, and sometimes abscess formation. Since this is frequently of the old chronic type, the possibility, when the ulcer is in the stomach, of carcinomatous degeneration must not be overlooked. There are no definite statistics in regard to the incidence of carcinoma arising from a chronic gastric ulcer, but Scott estimates it from 10 to 20 per cent.⁴ If there is no question in regard to the lesion's being of a benign nature, then the patient may be placed on medical management, but it must be strictly and accurately carried out. The type of management which I will describe and with which I am familiar is the one originated by Dr. B. W. Sippey—one which is very widely used and misused throughout the world today. It consists of accurately neutralizing the gastric acidity from the time that food is first placed in the stomach in the morning until it empties itself or is emptied by aspiration at night. It does not consist of the indiscriminate administration of alkaline powders, which will simply give the patient temporary relief. The treatment can only be given adequately and safely in the hospital, requiring an average time of a little over three weeks. This much time is necessary properly to institute the treatment, to determine how the patient is going to react to the treatment, to allow for the development of any complications, and finally to so drill the routine into the patient that after he leaves the hospital he can carry it on nearly automatically. At the start the patient is given three ounces of milk and cream mixture every hour from 7:00 a. m. to 7:00 p. m. Alkaline powders consisting of exactly thirty grains of soda-bicarbonate and ten grains of calcium carbonate are

given every hour from 7:30 a. m. to 8:30 p. m., and additional ones at 8:00 and 9:00 p. m. This powder has an acid combining power of 50 units, and in combination with the milk and cream, will neutralize the average gastric contents; consequently is used as a routine powder. The essential thing about the treatment, however, is that no case is considered as being average, and the powders must be increased or decreased to suit the individual case. This must be determined with mathematical accuracy, not by guess work. Since these powders are constipating to most cases, a second powder consisting of ten grains each of calcined magnesia oxide and soda bicarbonate is also provided. This powder similarly has an acid combining power of 50 units, so that it may be substituted for the routine powders as necessary for bowel movements without any loss of the acid control of the stomach. At 9:30 p. m. the stomach is emptied by means of the large Ewald tube, so that the total amount of food present can be calculated and the acidity of the contents determined by titration. Under ideal conditions there should be less than 50 c. c. present without free acid. In addition to the regular 9:30 p. m. aspirations, a sample of the stomach contents should be taken twice a week in the middle of the afternoon, exactly thirty minutes after a powder has been taken. The material so obtained need only be tested for free acid, because it is in the middle of the afternoon that free acid is most likely to be present in the stomach. If the evening and afternoon aspirations show that free acid is present in the contents, it will be necessary to increase the powders by adding 5 or 10 grains of calcium carbonate to all powders. It is seldom necessary to go beyond this limit. In some cases it may be possible to reduce the powders, which should be done, if possible; but the only way this can be determined is by regular aspirations and titrations. Guess work will not do it. On the third day the patient is given a soft boiled egg in addition to a feeding of milk and cream, and on the sixth day a dish of cereal is added. On the ninth day an egg is added and so on until six additional feedings

are given each day. Near the end, custards, ice cream, and thick soups may be substituted for either an egg or a dish of cereal. After the patient has been on six additional feedings for the three days, he is placed on a schedule of three meals. Breakfast and lunch are the largest meals, and supper a very small one, but practically all of the non-irritative or abrasive foods are allowed. Meat and vegetables puree are given as desired. In between meals the patient continues to take either a powder or milk and cream every thirty minutes, and a powder every thirty minutes after supper until 9:00 p. m. The aspirations may be discontinued if while the patient is on the schedule of three meals the stomach is emptying itself properly and the acid is controlled. On leaving the hospital the patient is instructed to stop taking the powders every five weeks for a period of three days to prevent the appearance of toxic symptoms from the cumulative effects of the alkali. He is expected to report at least every month and is ordinarily continued on treatment one year. There need be no fear of an acute perforation so long as the gastric acidity is under control, because this can only result from the auto-digestion of the gastric mucosa or inflammatory wall by an acid gastric juice. There is no danger from the passage of a stomach tube if it is passed properly and with any degree of gentleness. In cases where there is a penetrating ulcer on the lesser curvature, which can be readily visualized, serial x-rays taken every ten days will show how rapidly the defect will disappear under adequate management.

Hemorrhage from a peptic ulcer is present in about 18 per cent of cases according to statistics from the Mayo Clinic,⁵ but it is seldom that a single hemorrhage is massive enough to be fatal, and the first one is only rarely fatal. Death may result, however, from recurrent hemorrhage, but with proper management this eventuality is rarely seen. While it is true that in a few cases there is no demonstrable point of hemorrhage in the gastric mucosa, in the great majority the hemorrhage is very easily demonstrated as coming from a blood vessel which has been

eroded by the digestive action of the gastric juice. The hemorrhage tends to recur because the blood clots which are formed by nature to stop the hemorrhage are quickly digested away and never become organized. The immediate indication in these cases is most certainly to stop the hemorrhage by controlling the gastric acidity even though an operation be advised subsequently. The patient must be put on absolute bed rest, quieted with morphine, if necessary, and an ice coil is usually placed over the epigastrium. The routine powders described above should be given every thirty minutes for as long as twenty-four hours, and nothing else should be given by the mouth except water. Generally by the second night it is possible to reduce the powders to one every hour during the night hours, and by the second or third day milk and cream may be alternated with the powders so that they are only taken every hour. The criterion for reducing the powders is, of course, evidence of control of the hemorrhage; but they should not be continued too long, due to the danger of developing an alkalosis. It is usually advisable to give powders at least every hour up to midnight for about a week. In these cases it is not safe to pass a stomach tube to determine the control of the gastric acidity, due to the danger of starting a fresh hemorrhage. Consequently a more indirect method must be used, and we may feel certain that it is under control if there is definite evidence that the hemorrhage has stopped. While the pulse, general condition, blood count, and vomitus may give some evidence, the main reliance must be on careful stool examinations. Ordinarily the tarry stools will quickly disappear, and then there will be a gradually decreasing positive test for occult blood, which will eventually disappear, usually within a week. After the hemorrhage is definitely controlled, the patient may be given the regular additional feedings as described above. Frequent and regular blood counts should be made to determine the general progress of the patients, and blood transfusions may materially help those that have been markedly exsanguinated.

An abnormal retention of food in the stomach, and especially a high-grade obstruction, offers a very serious problem; but the apparent presence of a pyloric stenosis should by no means stampede one into immediately referring the patient to surgery. Disregarding carcinoma, the causes of food retention are pylorospasm, inflammatory edema, and cicatricial stenosis. The first two are amenable to medical management, and the third is usually a surgical case. However, it must be admitted that the first two may terminate in a cicatricial stenosis if they are placed on medical treatment and the ulcer begins to heal with the production of a large amount of scar tissue. This eventuality, which is relatively infrequent in occurrence, can only be determined by putting the patient on ulcer management.

Spasm of the pylorus as a complication of peptic ulcer is in every way comparable, as pointed out by Alvarez,⁶ to spasm of the anal sphincter in cases of rectal fistulae, and is essentially a muscular reflex phenomenon due to irritation of a very sensitive area. In it can be relieved by completely neutralizing the gastric juice and preventing irritation to the sensitive ulcerated area. The treatment indicated is essentially the same as that described under the subacute perforating type. It is especially important to empty the stomach completely at 9:30 p. m. to prevent continued irritation during the night when the stomach is supposed to be empty. The amount of material obtained on aspiration should gradually decrease, which will indicate the progress that is being made in relaxing the spasm. Drugs are of very little avail in these cases.

Inflammatory edema near the pyloric ring which is sufficient to cause an obstruction to the passage of food will similarly be relieved when the irritant action of the gastric juice is removed and the ulcerated area is allowed to heal. The medical management is the same as described above, but the night aspirations have usually to be continued for a longer period of time. If after three weeks of careful management large amounts are obtained in aspiration, or the amount gradually increases, there is probably a cicatricial

stenosis developing, and the patient should be told of the possibility in order that the question of operation may be considered. The patient may, however, continue to get large amounts of food out of the stomach at night, yet maintain very good health and frequently avoid an operation if he is willing to aspirate his stomach every night. Under no circumstances must large quantities of food and secretions be allowed to remain in the stomach over night. Accurate records should be kept to show the amount obtained on aspirations, so that the progress of the case may be judged.

A true cicatricial stenosis can only be relieved by performing a gastro-enterostomy or a partial resection. These cases are the ones in which the best results are obtained by surgical measures. Most surgeons prefer to have the patient on medical management for 10 to 14 days before operation so that they will not have to operate in highly inflamed and partially devitalized tissue (Alvarez loc. cit.). In aged people where enough food will pass during the day to sustain life comfortably, it is usually advisable to put them on ulcer management and have them aspirate their stomach every night. It is possible for such patients to aspirate as much as 2,000 c. c. every night, yet maintain a normal body weight.

A certain number of cases placed on medical management will have a severe type of distress at night, even when the acid is controlled during the day and the stomach is completely emptied at night. This is a condition known as a continued secretion, and is due to the fact that even after the stomach is emptied of food the gastric mucosa continues to pour out its acid secretions, so that after a short time enough of this highly acid material collects in the stomach to give a very severe type of distress. It is frequently associated with and greatly aggravated by a pyloric stenosis, and will usually be relieved coincidentally with it. The treatment consists of the administration of the routine powders that are being used on the case at 10:00, 11:00, and 12:00 midnight, and aspiration at 1:00 a. m. As soon as the amount obtained at the last aspiration is less than

50 c. c., and the acid is controlled, the aspirations may be stopped and the powders gradually decreased. An occasional midnight aspiration is indicated in these cases, because the control of this condition is of the greatest importance if a good result is to be obtained. It is manifestly useless to control the gastric acidity during the day time and then allow it to run wild at night. Many failures charged against the medical treatment of ulcers are no doubt due to the fact that this condition was present unrecognized. Frequently these cases can be helped by the use of tincture of belladonna given three times a day in gradually increasing doses until slight toxic symptoms such as a dry throat or a loss of visual accommodation are apparent, then continue just below this limit. Apparently this reduces the bulk of the gastric secretions without changing the titrable acidity.

The problem of recurrent peptic ulcer is one of the most difficult to handle. We know that without any treatment whatever a patient will go for long periods of time without any symptoms, be apparently cured, then have a recurrence. It is also common knowledge that recurrences are present after both medical and surgical types of treatment. The fact must be faced that if an ulcer occurs in an otherwise healthy individual, as it frequently does, it is liable to recur at some future time. Very little is known as yet regarding the etiology of peptic ulcer.

In a recurrence after a medical management it is, of course, essential to determine how adequate the original treatment was and how accurately and thoroughly it was carried out. If the treatment was only a slip shod one, or if a number of years has elapsed between attacks, and if there are no contraindications in the immediate symptoms, a second and more thorough course may well be given. At the other extreme, where after accurate ulcer management there is a recurrence, it may be necessary to advise surgical intervention. In cases of gastric ulcer the possibility of carcinoma must be very seriously considered. Cases between these two extremes must be settled on their individual merits.

Jejunal ulcers coming on after a gastroenterostomy are probably the most difficult of any to handle. A partial gastric resection under a competent surgeon is one of the possible methods of treatment and may effect a cure; but it is a serious operation, and it must be remembered that these cases have already had two ulcers form, and a third one is still a possibility after a resection. What then can be done for these cases? In view of these conditions, it is certainly reasonable to suggest that these patients be given a course on medical management, but they require infinite and painstaking care in the control of the gastric acidity, even though in some of these cases it is subnormal. It is seldom that any difficulty is encountered from food retention, because usually the stomach empties too fast. Even the powders will be swept out of the stomach in from 10 to 15 minutes, which allows for the accumulation of free acid. The use of the heavier tertiary powders of calcium and magnesia described below frequently helps in controlling these cases. Hemorrhage is a frequent complication, but it is seldom a massive hemorrhage, and will only be evidenced by the presence of occult blood in the stools. For this reason the stools must be regularly tested for its presence. The length of time on which the patient must be kept on management is never less than a year and frequently much longer.

An idiosyncrasy or any inability of the body to tolerate the alkaline powders described above in the amounts necessary will result in the production of an alkalosis. This is not, of course, a direct complication of peptic ulcer, but it may very well be discussed here. The treatment of this condition consists of immediately stopping all powders as soon as the first symptoms appear and forcing fluids by mouth or rectally if necessary. Regular kidney function tests should be made, because there is practically always a marked depression of kidney function during the period of alkalosis. If possible, frequent blood chemistry tests should be made, but they are expensive for the average patient. When all the symptoms have cleared up, the patient's regular routine should be resumed, but it will be necessary

to change the powders used. In these cases a powder consisting of thirty grains of tertiary calcium phosphate and fifteen grains of tertiary magnesium phosphate is used. The amount of the magnesia powder should be as varied as is necessary to maintain a normal bowel function, and the calcium varied as necessary to control the gastric acidity. An idiosyncrasy to these powders is practically unknown, since they are not absorbed by the gastro-intestinal tract. They are, however, more expensive and bulky than the routine powders of calcium and soda.

I have endeavored to stress the absolute necessity of the avoidance of arbitrary decisions in the choice of treatment of peptic ulcer, and if a patient is placed on medical management, modification of the treatment to treat the particular case. This can only be done by having a definite knowledge as to what complications are present, then varying the treatment to suit the case. It is absolutely essential that as much of the guess work be eliminated as possible, which is largely accomplished by the regular use of the aspirating tube and actual titration of stomach contents.

The physician is responsible for the determination of any possible focal infection such as in the teeth or tonsils, and for their eradication. While it has never been definitely shown that peptic ulcer is an infectious process, the work of Dr. Rosenow is at least suggestive.

The patient must also be advised as to your aims and purposes, so that he can cooperate as intelligently as possible. It must be drilled into him that his stay in the hospital is only the beginning of the treatment, and that the actual healing of his ulcer so that there is to be a normal gastric mucosa depends entirely on his ability to continue the routine over a long period of time.

¹Lewisohn, R., Gastro-Duodenal Ulcers, J. A. M. A. 89; 1649-1642, Nov. 12, 1927.

Horslev, J. S., Partial Gastrectomy, J. A. M. A., 89; 1652-1655, Nov. 12, 1928.

²Deaver, John B., Chronic Ulcer of the Duodenum and Stomach, Surg. Gynec. and Obst., XLVI, 161-167, Feb., 1928.

³Eusterman, G. B., and Bueerman, W. H., Carcinoma of the Stomach, J. A. M. A., 88:295-301, Jan. 29, 1928.

Scott, W. J. M., the Relationship of Carcinoma

and Callous Gastric Ulcer, Surg. Gynec. and Obs., XLVI; 199-213, Feb., 1928.

⁴Balfour, D. C., Management of Lesions of the Stomach and Duodenum Complicated by Hemorrhage, J. A. M. A., 89; 1656-1659, Nov. 12, 1927.

⁵Alvarez, W. C., The Mechanics of the Digestive Tract, Second Edition, Paul B. Hoeber, Inc., New York.

NEWS ITEMS

Dr. Harvey J. Bradfield of Sheridan, Wyoming, who is the dean of the Sheridan profession has changed his location to Monterey, California, and has built a beautiful home in the pleasant surroundings of that state.

Dr. J. B. Guthrie announces plans to leave Cheyenne June 1st for Chicago for a month of post-graduate and research work in mental and nervous diseases.

Dr. C. H. Platz, a former State President has changed his location from Casper to Fort Collins, Colorado. The boys of the State Society will certainly miss Dr. Platz but we have his promise that he will be with us at the Yellowstone Park meeting in August.

Dr. C. F. Kemper, Editor of Colorado Medicine, delivered the commencement address to the graduates of the Memorial Hospital at Cheyenne, May 24th. Dr. George P. Johnston of Cheyenne presented the graduates and the Hon. Judge T. Blake Kennedy of the U. S. Court of Wyoming, also delivered an address to the nurses.

Dr. Evald Olson, State Treasurer of the Wyoming State Medical Society, of Lovell, has been quite ill with flu complicated by otitis media, but we understand that he is improved considerable and is attending to his work.

Dr. C. E. Stevenson, Dr. O. L. Veach and Dr. Earl Whedon of Sheridan all attended the meeting of the American Medical Association at Minneapolis.

Nutrition Cup in Florida Arouses Public Interests.

The nutrition cup awarded by the National Tuberculosis Association, which was held last year by St. John's County in northern Florida, centering about St. Augustine, went this year to Dade County in the south, whose seat is Miami. This change aroused considerable comment among the people. "What was nutrition?" "Why did Dade County win the Cup?" were frequent questions.

The Dade County Chapter has had a fulltime nutritionist in Mrs. Grace S. Wagner. Her work is educational. Talks before school assemblies on food for healthy physical development, with food models, and talks before Parent-Teacher Associations and 4-H clubs, won many converts. Living illustrations of the effects of different types of diet were given. Children in both white and colored schools were weighed and records kept.

During Roll Call an effective window display illustrating ten necessary daily foods with explanatory placards was shown.—The Red Cross Courier.

There is hardly any malignity so intolerable that it may not be overcome by repeated favors.—Dion.

TRI-STATE MEETING OF THE STATE MEDICAL SOCIETIES OF IDAHO, MONTANA AND WYOMING, IN THE YELLOWSTONE NATIONAL PARK, AUGUST 27, 28, 29, 1928.

Headquarters at the Canyon Hotel

For Hotel Reservations:

Write to the Yellowstone Park Hotel Co., Yellowstone, Wyoming.

For Camp Reservations:

Write to the Manager of Yellowstone Park Camps Co., Yellowstone, Wyo.

For Exhibition Space:

Write to Dr. E. G. Balsam, Secretary Medical Association of Montana, Billings, Montana.

Please bring this program to the Yellowstone Park:

MONDAY, AUGUST 27, 1928

IDAHO DAY

8 a. m. Call to order.

President's Address.....Alexander Barclay, M.D.
Coeur d'Alene, Idaho

"Emergency Surgery".....Dean Lewis, M.D.
Surgeon-Chief, Johns Hopkins Hospital,
Baltimore, Md.

"Some Lessons from Physiology in the Surgery of the Stomach".....Jabez N. Jackson, M.D.
President, American Medical Association,
Kansas City, Mo.

"The Treatment of Pelvic Infections".....
Henry Schmitz, M. D.
Loyola University, Chicago, Illinois

"Treatment of Non-malignant Lesions of the Stomach and Duodenum".....
Donald C. Balfour, M. D.
Mayo Clinic, Rochester, Minn.

"The Work of the American Medical Association" (with lantern slides).....Morris Fishbein, M.D.
Editor, Journal of the American Medical Association, Chicago, Ill.

"Fractures".....Paul B. Magnuson, M. D.
Chicago, Illinois

Monday Afternoon

Sight seeing trips in the Yellowstone Park.

Monday Evening

7 p.m. Meetings of the House of Delegates of the State Societies of Idaho, Montana and Wyoming.

9 p.m. Social entertainment by the wives of the Idaho physicians.

TUESDAY, AUGUST 28, 1928

MONTANA DAY

8 a. m. Call to order.

President's Address.....George M. Jennings, M.D.
Missoula, Montana

"Splenomegalie in Childhood".....Julian Hess, M.D.
Chicago, Illinois

"Clinical Interpretation of Blood Pressure Values" (lantern slides).....P. M. Krall, M.D.
Kansas City, Mo.

"The Differential Diagnosis and Treatment of Lesions of the Tongue" (lantern slides).....

.....E. P. Zeisler, M. D.
Chicago, Illinois

"Modern Advances of Ophthalmic Therapeutics"

.....Harry S. Gradle, M. D.
Chicago, Illinois

"Head Injuries, Differential Diagnosis and Treatment".....C. W. Hopkins, M. D.

Chief Surgeon, Chicago & North Western
Railway Co., Chicago, Illinois

"The Curability of Cancer".....

.....George A. Soper, Pd. D.
Managing Director for the Control of
Cancer, New York City

Tuesday Afternoon

Sight seeing trips in the Yellowstone Park.

The Montana Academy of Oto-Ophthalmology will hold its semi-annual meeting in conjunction with the Tri-State Meeting. Programs will be sent later to the Ophthalmologists and Oto-Laryngologists in the three states, all of whom are cordially invited to attend.

J. G. Parsons, M. D., Secretary,
Lewistown, Montana

Tuesday Evening

7 p.m. Meetings of the House of Delegates of the State Societies of Idaho, Montana and Wyoming.

9 p.m. Social entertainment by the wives of the Idaho physicians.

WEDNESDAY, AUGUST 29, 1928

WYOMING DAY

8 a. m. Call to order.

President's Address.....A. P. Kimball, M. D.
Casper, Wyo. (Now located at Logan, Utah)

"The Importance of the Simpler Methods of Physical Diagnosis".....W. S. Thayer, M.D.
President-elect, American Medical Association, Baltimore, Md.

"The Relation of Abdominal Ptosis to Abnormal Gastro-Intestinal Function and Pail. Treatment".....R. C. Coffey

Portland, Oregon

"The Surgery of Thyrotoxicosis" (lantern slides)

.....J. R. Buchbinder, M. D.
Chicago, Illinois

"A Post-Operative Review of One Thousand Operations for Goiter".....C. A. Roeder, M.D.
Omaha, Nebraska

"The Variable Significance of Urinary Sugar".....C. F. Kemper, M.D.

Editor, Colorado Medicine
Denver, Colorado

"Treatment of Pregnancy in Patients with Diabetes".....Russell Wilder, M. D.
Mayo Clinic, Rochester, Minn.

"The Presence and Management of Prostatic Hypertrophy".....F. M. McCollum, M.D.

Kansas City, Mo.

Wednesday Afternoon

Sight seeing trips in the Yellowstone Park.

Wednesday Evening

7 p.m. Meetings of the House of Delegates of the State Societies of Idaho, Montana and Wyoming.

9 p.m. Social entertainment by the wives of the Wyoming physicians.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 11, 12, 13, 1928.

OFFICERS, 1927-1928

President, William A. Sedwick, Denver.

President-elect, Samuel B. Childs, Denver.

Vice-Presidents, 1st, James M. Lamme, Walsenburg; 2nd, W. B. Hardesty, Berthoud; 3rd, R. H. Finney, Pueblo; 4th, R. B. Porter, Glenwood Springs.

Secretary, F. B. Stephenson, Denver.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association: Senior, T. E. Carmody, Denver, term expires 1928; Alternate, Ralph Johnston, La Junta, term expires 1928; Junior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929.

Councilors:

Term expires

District 1.	Ella A. Mead, Greeley	1930
District 2.	G. P. Lingenfelter, Denver	1929
District 3.	John R. Espey, Trinidad	1928
District 4.	W. W. Crook, Glenwood Springs	1931
District 5.	A. W. Robbins, Durango	1932

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, Lawrence L. Hick, Delta.

Denver County—First and third Tuesday of each month; secretary, O. S. Fowler, Denver.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Kon Wyatt, Canon City.

Garfield County—Last Thursday of each month; secretary, O. F. Claggett, Rifle, Colo.

Huerfano County—Third Thursday of each month; secretary, W. L. Wilkinson, La Veta, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, M. J. Stewart, Loveland.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, J. A. Spring, Montrose.

Morgan County—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Geo. Sorensen, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. R. Blalock, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, H. W. Averill, Evans, Colo.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Work: J. J. Waring, chairman, Denver; J. B. Hartwell, Colorado Springs; William Senger, Pueblo.

Committee on Local Arrangements: E. D. Downing, chairman, Woodmen; J. A. Sevier, Colorado Springs; W. W. Wasson, Denver.

Committee on Credentials: F. B. Stephenson, chairman, Denver; H. W. Snyder, Denver; F. R. Spencer, Boulder.

Committee on Public Policy: Philip Work, chairman, Denver; Edward Jackson, Denver; C. G. Hickey, Denver; D. H. Coover, Denver; W. T. H. Baker, Pueblo; P. J. McHugh, Fort Collins; C. A. Ringle, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver (term expires 1928); C. S. Elder, Denver (term expires 1929); W. H. Crisp, Denver (term expires 1928).

Auditing Committee: G. C. Cary, chairman, Grand Junction; O. E. Coleman, Denver; Florence Fezer, Greeley.

Committee on Necrology: W. A. Palmer, chairman, Castle Rock; H. R. Bull, Grand Junction; C. H. Graves, Canon City.

Committee on Medical Education: J. J. Waring, chairman, Denver; Maurice Rees, Denver; L. H. McKinney, Colorado Springs.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; M. Ethel V. Fraser, Denver; C. W. Streamer, Pueblo.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: C. O. Giese, chairman, Colorado Springs (term expires 1928); Maurice Rees, Denver (term expires 1929) O. S. Fowler, Denver (term expires 1930).

Committee on Military Affairs: John Chase, chairman, Denver; L. M. Van Meter, Denver; E. B. Liddle, Colorado Springs.

Committee on Careers of Members: R. G. Davenport, chairman, Denver; W. K. Reed, Boulder; C. E. Sidwell, Longmont.

Committee to Confer With Boy Scouts: H. S. Canby, chairman, Denver; R. S. Johnston, La Junta; Atwater Douglass, Denver.

Committee on Mental Hygiene: F. G. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; T. R. Love, Denver; C. W. Thompson, Pueblo; T. C. Taylor, Fort Collins; F. W. Lockwood, Fort Morgan.

Committee on Periodic Health Examinations: C. F. Kemper, chairman, Denver; G. H. Curfman, Salida; A. H. Harris, Denver.

Committee on Full-Time Secretary: R. S. Chamberlain, chairman, Denver; B. B. Blotz, Rocky Ford; Jean Gale, Denver; A. J. Nossaman, Pagosa Springs; N. B. Newcomer, Denver.

Committee on Co-operation With the State Pharmacal Association: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.

Curator of Exhibits: E. D. Downing, Woodman.

Committee on Golf Tournament: L. G. Brown, chairman, Colorado Springs; J. R. Arneill, Denver; L. M. Van Meter, Denver.

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TUNING IN

Opposition to Tuberculosis Eradication Declines As Benefits Are Realized.

Critics of the tuberculosis-eradication campaign in the United States are, as a rule, well-meaning, but uninformed. The Bureau of Animal Industry of the United States Department of Agriculture has observed a rapid decline in opposition to the campaign for eradication of bovine tuberculosis, but occasional criticisms persist. To these objectors the bureau offers opportunity to judge the overwhelming mass of scientific evidence in published form. An array of established facts, the bureau asserts, proves that eradication of tuberculosis from livestock means not only a huge economic saving to the livestock industry, but also a safer milk and food supply to the American public.

In particular the bureau stresses the view that tuberculosis eradication is an expression of the public will through their elective representatives. The work aims to remove, in a practical way, the menace of a devastating disease. The cooperative work is conducted under federal and state authority, and is supported by funds appropriated by congress, by state legislatures, and by counties. Any opponent may have opportunity to appear and voice opposition when appropriations and authorization of the work are under consideration. The work has expanded to new areas from year to year because the advocates have presented to legislators evidence that convinced the doubters of the merit of the campaign.

The Bureau of Animal Industry is confident that the work will go on. Opposition to eradication work, which was quite general ten years ago, has declined until now it occurs only sporadically. Obstructors, the bureau says, add something to the cost of eradication and the time required for completing the work, and increase the opportunity for tuberculosis to spread from animal to animal, and from animal to persons. The bureau believes that citizens have every right to express criticism verbally or through the press, but that if the critics are sincere and honest, they should first obtain the facts readily available in federal and state publications which controvert practically all criticisms that have arisen to date. It is especially regretted that some critics whose titles imply scientific training or attainment have sought to hamper the work with unsound objections and without adequate consideration of the reliable information so easily obtained.

The Cost of Cancer Research.

In a letter to the New York Times which appeared last autumn Dr. Francis Carter Wood estimated that the total sum of money which was spent for cancer research throughout the world was not over \$400,000 a year. This included the salaries of those who were engaged in scientific research into the causation of cancer and other aspects of the subject as studied in the great laboratories established for the purpose or in connection with hospitals.

The smallness of this sum will surprise many persons, for it would appear that a problem which is recognized to involve the lives and welfare of so many would be supported very gen-

EVERY WOUND IS

a potential field for **TETANUS**
Yet it is so easily prevented

Barefoot children on city streets and country roads are in constant danger of being cut by sharp stones or broken glass. Wounds and punctures of this type offer an excellent field for the development of the Tetanus organism—yet the child of today is more fortunate than those of the previous generation. Tetanus can be prevented by the prompt administration of Tetanus Antitoxin.



The approach of summer with its increased outdoor activity and its consequent dangers from infection with tetanus makes it advisable to have on hand one or two packages of Tetanus Antitoxin Squibb.

All breaks in the continuity of the skin, especially when deep, are well-known to be excellent media for the growth of the anaerobic tetanus bacillus. On the battlefields in France every wound, no matter how trivial, was considered a potential tetanus infection and the individual was immunized against tetanus by the use of antitoxin. This immunization practically eliminated tetanus in the World War.

In civil life also this danger exists, and the best practice is to prevent rather than to try to cure tetanus after it has developed. A simple subcutaneous injection of antitoxin gives this immunity.

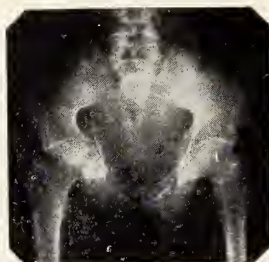
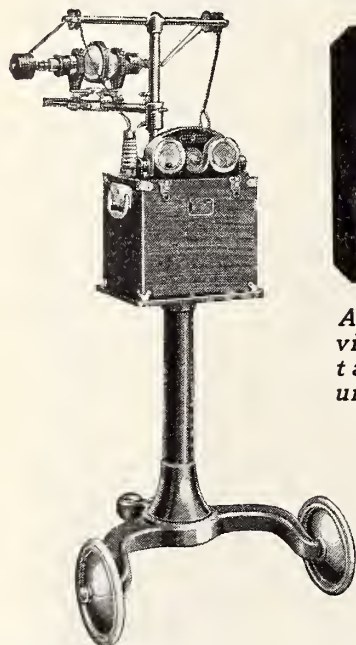
Tetanus Antitoxin Squibb is small in bulk, high in potency, low in total solids, yet of a fluidity that permits rapid absorption. It is remarkably free from serum-reaction producing proteins. Tetanus Antitoxin Squibb is supplied in vials or syringes containing an immunizing dose of 1500 units. Curative doses are marketed in syringes containing 3,000, 5,000, 10,000 and 20,000 units.

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erously. The fact is that the total number qualified research workers now engaged upon the cancer question is not nearly as great as commonly supposed and the number of institutions which are devoting all, or a large share of their attention to the investigation of the fundamental secrets of cancer is very small.

With a view to the preparation of a plan and authoritative statement on the subject of cancer research and the need of devoting much larger sums of money to this work, a joint committee has been formed by the American Association for Cancer Research and the American Society for the Control of Cancer. Following are the members for for the American Association for Cancer Research, Dr. Aldrich Scott Warthin, University of Michigan; Dr. T. Bell, University of Minnesota Medical School; Dr. Otto V. Huffman, Mount Kisco, New York; and for the American Society for the Control of Cancer, Dr. Robert B. Greenough, chairman of the Harvard Cancer Commission; Dr. Francis Carter Wood, director of the Institute of Cancer Research, Columbia University; and Dr. James Ewing, director of research, Memorial Hospital, New York.—American Society for the Control of Cancer.

The One Great Outstanding Problem

An employee of a large corporation recently consulted a physician about some "rheumatic" pains. Examination of his teeth indicated that he was in immediate need of extensive dental work. When told what was required, he replied "I can't afford to have it done."

The physician, knowing in a general way his economic condition, remonstrated, "Surely a man with a position like yours can afford to pay for this work, especially when you consider its importance to your health and efficiency."

"I could have afforded it a year ago," the patient answered, "but I can't now. A year ago, I had ten thousand dollars in cash and securities and thought I was pretty well off. Then my wife had to go into a hospital for a major operation, and before she was well recovered my mother found that she also needed an operation. When I got through paying for their hospital care, surgical and medical attendance, special nurse laboratory examinations, anaesthetics, ambulance and goodness knows what, I found that my ten thousand dollars had vanished and that I was heavily in debt."

"Unless you can find a dentist," he concluded, "who will do the job for nothing, I can't have it done."

The high cost of ill-health is not due to the fact that physicians as a group are being paid too much. On the other hand, it is doubtful whether the income of a majority is adequate. The cost of medical education (often \$10,000 or more), together with free work at the homes of clients, uncollectable bills, free service in hospitals and clinics, failure to charge for preventive work at high cost of equipment and living—these various items often reduce the net income to an amount far from satisfactory. It has been estimated that the physicians of Denver, Colorado, give at least one million dollars' worth of services per year without charge. Dentists, nurses and others engaged in the cure and prevention of disease are surely not getting rich at the expense of the sick. It is the large number of separate charges, in many cases, which causes hardship.

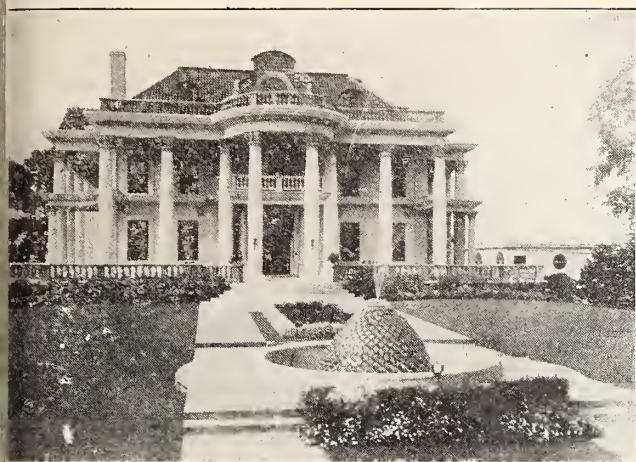
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cause of the high cost of medical care. There is also much dissatisfaction among physicians and other personnel because of insufficient income. The question arises whether the present system meets adequately the needs either of the patient or of those who render him professional service.

The Committee on the Cost of Medical Care has been created to study the problem underlying the situations cited above, which is declared by the secretary of the American Medical Association to be the most important before the medical profession today. It is also one of the most difficult. The committee, however, has allotted five years of study to the task. It is approaching the problem without bias, and without preconceived ideas of what the solutions will be. The personnel of the committee includes representatives of various medical organizations and of other long-established and conservative agencies, a circumstance which should assure reasonableness in the committee's recommendations. But since the members are also persons accustomed to reach conclusions when the facts justify them, and since the committee includes several influential representatives of the general public, it is believed that the recommendations will be sufficiently concrete and specific to satisfy and encourage all who are eager for more effective medical service.

It is the hope of the committee that the completion of the program outlined will throw substantial light upon the following fundamental questions: the extent to which the burden of the cost of medical care and the incidence of sickness falls upon various economic and social classes in different types of communities, and the variation in cost to the individual families; the proportion of the cost of medical care in typical communities borne by the patient, the community and the physician himself; the financial returns to physicians with various types of practice in particular areas and under particular conditions; and the comparative adequacy and economy of medical care under diverse plans and programs of emergency or distributed payment.

Many physicians will be interested in the committee's studies, because they are having difficulty in securing adequate facilities for scientific work or because their earnings are being reduced by too much free service and the high cost of equipment. Many patients will be interested because they have had experiences similar to that related above.

The American Medical Association, the United States Public Health Service, and the Metropolitan Life Insurance Company are among the agencies which have agreed to cooperate with the committee in the development of the program of studies. The support of the committee by the Carnegie Corporation, the Milbank Memorial Fund, the Russell Sage Foundation and the Twentieth Century Fund has made possible the inauguration of the program.

The committee believes that the facts which will be revealed by the studies should encourage practical experimentation by the medical profession and the public, and that they should lay a foundation for the provision of adequate and efficient therapeutic and preventive treatment to all the people at a reasonable cost to the individual and the community, under conditions which will assure the physician, nurse, dentist and other agents adequate compensation.

Seventeen studies have been outlined in a forty-page program, which may be obtained upon application.

COMMITTEE ON COST OF MEDICAL CARE.

Colorado Medicine

Published by the Colorado State Medical Society

PUBLICATION COMMITTEE

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C. S. BLUEMEL, M.D., Denver

CHARLES S. ELDER, M.D., Denver
Single copies, 25 Cents

EDITOR:

C. F. KEMPER, M.D., Denver, Colorado.

VOL. 25.

AUGUST, 1928.

No. 8.

EDITORIAL NOTES AND COMMENT

WHO IS TO BLAME?

The modern hospital should be something more than a domicile for the sick. It should not only bind up their wounds but also act as a center of "sweetness and light," affording inspiration for every good work along avenues of public health. That most hospitals are progressing favorably in their work can probably be conceded. In one respect the better class of such institutions are making a record which stands as a challenge to the medical profession at large, viz: Post mortem examinations. In several of the larger metropolitan institutions and at the Mayo Clinic the figures run well over eighty per cent. of all deaths. The significance of such figures can not be ignored. Granting that conditions are more favorable for post mortem work in the larger hospitals, there is no excuse for the indifference of the profession to this problem. Human nature is much the same in Denver and Colorado Springs as in Rochester and Baltimore. Post mortem examinations can be obtained in a goodly percentage of cases if the physician is alive to his opportunity and actuated by a high sense of duty. What should be the proper method of approaching the friends of the deceased can best be determined by circumstances. We can fairly ask for post mortem examinations in the interest of science without overstating the case. Should

such an appeal fail we should hardly scruple to remind the dissenting relatives as tactfully as possible that their attitude savors of selfishness. By their refusal they, in effect, declare themselves substantially as follows: "We want the medical profession to minister with understanding to our families when sickness enters our homes. We expect each physician to bring to bear not only whatever individual talent he possesses, but to make our sick the heirs of all that science has brought forth in ages gone. We demand all the benefits accruing to knowledge of pathology and diagnosis from thousands of post mortems, but we decline to contribute in kind to the relief of human suffering."

Since all the vantage of logic rests with the physician it is self evident that most of the blame for our shortcoming lies not on the public, but with ourselves. Nor shall we have fulfilled our duty when we begin to plead more earnestly for post mortem examinations. There is that which transcends argument as a convincing force. Nothing so much appeals to reason as a shining example. When it becomes the habit of physicians to foreorder post mortems on their own bodies we can with better grace plead our case with the layman. Colorado can hardly boast of its post mortem figures. It could, and it should, be the first of the states to place its medical profession in a rational position on this matter. What better agency offers for concerted action than the county society?

C. E. H.

AN UNFINISHED TASK

Measured by its scientific possibilities the art of medicine has much unfinished work before it. Some of this unfinished business is due to deficient skill and training, but the greater part of the failure is due to other causes extraneous to either the science or the art of medicine. The facts are that the art of medicine very closely parallels the science, and in the history of medicine art has many times been ahead of science: witness the treatment of malaria and lues. In some very important features art more than science must guide our footsteps as in cancer and most of the psychoses. I do not recall a single completed scientific discovery that has proven useless because of an inability to acquire the skill to use it. What is it that stands in the way of the full fruition of medical service? There is no competent conscientious doctor who does not habitually see patients in need of help he is competent to give and because the patient is unable to evaluate his trouble or to meet the financial demands the work goes undone. Distrust of the motives behind the advice is too often a deterrent factor. The three main obstacles are, the inability of the patient to understand, the financial burden and the distrust of the motive behind the advice, the first and second obstacles are removed from the immediate field of medicine into the sociologic department of biologic science and must be ultimately solved by workers in that field. It will not be amiss to make some observations on the problems. The inability of the patient to understand his needs is due to the rapid growth of medical science. A new viewpoint of casual relationship is needed to understand its potentialities, while the mass mind interprets disease with a cerebral organization still made up of the primitive complexes of the self-sourced origin of phenomena. This viewpoint still dominates our religious and educational teachings and is strongly supported by an industrial system that concentrates the products of industry and disintegrates the bonds of interdependence and mutual benefits that normally flow from production and exchange. The inability

of the patient to meet the actual expense of his care is the most serious difficulty the practitioner of medicine meets. No consecration of his talents to the complete fulfillment of the Hypocratic oath can overcome the financial burdens inherent in the vast network of human activities that the doctor must command in the full application of his art. The costs are made much more burdensome than they should be. The churches build their hospitals, the cities, the counties, the state and the nation and the rich endow hospitals. The attempt is made to make them all modern. Intelligentia hospitals with intelligentia overhead burdens are built to meet the needs of the middle class and paupers. It is wicked in its vainglorious stupidity. The harm is in part mitigated by the devotion of the doctor, the nurse and the hospital management who are in touch with the needs of the sufferers. But even here the deflections from duty are many and serious. It is impossible to protect a dependent citizenship from the indignities of an economic control that in its essence is ownership. Medicine is confronted with the dilemma of functioning under a government that is in the empiric stage of development. Government is the most portentous and heroic experiment in the history of man, and its failure the most catastrophic calamity that can engulf him. Government is an attempt to define the basic laws of social life and to make and enforce the rules and regulations in conformity to these basic laws. It thus assumes the responsibility of an attempt to guide and mold the citizen body into the form it conceives to be the result of the natural order. It becomes the directing force defining the rights, the liberties of its citizens. Our constitution was written when there was no science of biology, when man was thought to be a thing apart from the rest of the world. That he came from a special act of creation and was dependent upon the rules laid down by his creator. There was no comprehension of life as the product of cosmic forces and subject to their infinite play. The founders did give evidence of their deep sincerity and consciousness of their limitations by making provisions for readjust-

ments little reckoning that deformity of structure and function once established in social life is proportionately as difficult to correct as deformities in the individual. The medical profession is an integral part of the social body whose morphology and physiology is in the likeness of the imperfect rules so sincerely and heroically ventured for our sake. Will it not be a greater evidence of our appreciation of their labor and sacrifice to take up their task and with complete con-

secration of our efforts to truth and justice to rewrite our constitution holding fast the true, eliminating the error, and adding the necessary provisions needed to insure justice, freedom, liberty and fellowship among men. Only under such conditions can medicine ever minister to its full capacity. We have no other choice if we refuse the certain increasing hideous sisyphian incapacity to utilize our powers.

G. A. B.

PROGRAM

Fifty-Eighth Annual Session

COLORADO
STATE MEDICAL
SOCIETY

Colorado Springs, Colo.

TUESDAY MORNING, SEPTEMBER 11

1. "Removal of Magnetizable Metal from the Eye-ball."

W. C. BANE, M.D.

Importance of preliminary record of accident and vision. Examination by direct and reflected illumination. Diagnostic methods, including the x-ray, the sideroscope and the magnet. Value of hand magnet as compared to giant magnet and indications for use of each. Corneal and scleral incisions for extraction of metal. Prognosis. After treatment.

Discussion opened by: Dr. W. H. Crisp and Dr. F. B. Stephenson.

2. "Observations on the Treatment of Tabetic Neurosyphilis."

GEORGE MOLEEN, M.D.

Brief review of the evolution in the treatment of tabes, with a discussion of the records of twelve cases, illustrating the comparative values of treatments instituted. Lantern slide demonstration of tabulated, clinical and laboratorial data.

Discussion opened by: Drs. Edward Delehanty, Franklin Ebaugh and Philip Work.

3. Address—Periodic Health Examinations.

MALCOLM L. HARRIS, M.D.

President-elect, American Medical Association.

4. "Status of the Calmette (BGG) Vaccination Against Tuberculosis."

MAURICE KATZMAN, M.D.

1. Historical. 2. Bacteriologic description of BCG. Source, method of attenuation, growth of organism and preparation of vaccine. 3. Immunologic consideration. 4. Animal experiments by German, French and other re-

search investigators. Animals used, mode of administration and post-mortem findings with a comparison of results. Post-mortem findings in infants dying from various causes after vaccination. 5. Reaction of infants to vaccine.

1. Method of Administration.
2. Symptomatology.
3. Elimination from body.
4. Complications and sequelae.
5. Relation of von Pirquet to time of ingestion.
6. Probable effectiveness; in degree and time.
7. Relation to other diseases.
8. Statistical studies in infant vaccination (with charts).
9. Evidence for and against its use. Sociologic considerations.
10. Indications and contra-indications for its use in selected cases.
11. Comment.
12. Summary.

Discussion opened by: Dr. Gerald B. Webb and Dr. Emanuel Friedman.

5. Partial Gastrectomy for Peptic Ulcers Coincident with Lymphosarcoma (Hodgkin's Disease) of the Stomach. Recovery."

LEONARD FREEMAN, M.D.

Report of a case in which a partial gastrectomy was done for peptic ulcers. In addition, another pathologic condition was present, which manifested itself in marked and extensive thickening of the walls of the stomach and duodenum, together with enormous enlargement of lymph-nodes. In spite of a laboratory diagnosis of lymphosarcoma, and that the resection was made directly through diseased tissues, the patient's recovery was uneventful and he remains in excellent health. In connection with this case the relationship between Hodgkin's

Disease and lymphosarcoma is considered, together with their occurrence in the region of the stomach. Attention is also called to the occasional unexpected disappearance of inoperable malignant gastric lesions following laparotomy, to the advisability of exploratory operations, and to the necessity for somewhat guarded prognoses. (Lantern Slides.)

Discussion opened by: Dr. C. F. Kemper and Dr. L. H. McKinnie.

TUESDAY AFTERNOON, SEPT. 11, 1928

1. Presidential Address—

S. B. CHILDS, M.D.

2. "A Paramount Problem of Modern Medicine."

HORACE G. WETHERILL, M.D.

1. The one outstanding problem before the Medical Profession today is that involved in the delivery of adequate, scientific, medical service to all the people, rich and poor, at a cost which can be met by them in their respective stations of life.
2. Tendencies of the times. What has already been established.
3. How shall this movement be met for the best interests of all concerned? Shall it be organized and formulated or allowed to drift and evolve as circumstances dictate?

Discussion opened by: Dr. Henry Sewall.

3. "Isolated Fractures of the Transverse Processes of the Lumbar Vertebrae."

J. B. HARTWELL, M.D.

Isolated fractures of Lumbar Transverse Processes are a cause of traumatic backache. Positive diagnosis can be made by x-ray only and congenital malformations and anatomical variations must be differentiated from fracture. Operative removal of fracture fragments offers the quickest and most certain means of treatment in the acute cases and is unquestionably indicated in the disabling chronic cases.

Discussion opened by: Dr. Fosdick Jones and Dr. Atha Thomas.

4. "Oesophageal Diverticula."

GEORGE E. RICE, M.D.

Oesophageal diverticula may be either traction or pressure. Generally follow inflammatory gland. Usually lean to left side. Commonest site at junction of the pharynx and oesophagus. Diagnosis clinically by dysphagia, regurgitation of food from the sack, loud gurgling sound on swallowing. X-ray after barium meal clearly shows outline of sack. Treatment by operation depending upon the size of the diverticulum.

Discussion opened by: Dr. G. B. Kent.

5. "Retro-displaced Uterus. Its Significance."

CUTHBERT POWELL, M.D.

The backward displacement of the uterus may be due to a version or a flexion; or the condition may be one of retrocession in which neither flexion nor version exists. The uterus being a movable organ retrodis-

placements are not necessarily pathological. The retrodisplacement in the nulliparous has not the same significance as in the parous woman. Uncomplicated retroplacements rarely give rise to symptoms and should not be subjected to radical surgical procedures.

Discussion opened by: Dr. C. B. Ingraham.

TUESDAY EVENING, SEPT. 11, 1928

8 P. M.

1. An Outline of the Surgery of the Stomach and Duodenum.

DONALD BALFOUR, M.D.
Mayo Clinic.

2. Address—

LEROY CRUMMER, M.D.
Omaha, Nebraska.

WEDNESDAY MORNING, SEPT. 12, 1928

1. Address—"Physiology of the Liver and Gallbladder."

FRANK C. MANN, M.D.
Mayo Clinic.

SYMPOSIUM ON PYELITIS

2. "Pyelitis from the Standpoint of the Urologist."

HARRY WEAR, M.D.

Pyelitis, properly termed pyelonephritis, is to be considered in this paper as an inflammatory condition of the kidney substance, tubules, and pelvis that is not dependent upon ureteral obstruction. It is regarded as secondary to a primary focus of infection. The bacteriology has been thoroughly reported, the larger percentage being due to colon bacillus infection which manifests itself as an invader of the mucous membrane previously infected by other organisms. A relatively safe medical treatment is outlined.

3. "Pyelitis in Children."

ROY FORBES, M.D.

Although pyelitis is easily diagnosed, it is frequently overlooked as a cause for fever. The incidence of pyelitis is discussed in relation to age and sex. Views concerning the etiology of pyelitis have changed in recent years. At the same time it has been necessary to revise our methods of treatment. Congenital anomalies of the genito urinary tract with recurrent or chronic pyelitis is relatively common and requires radical treatment.

4. "Pyelitis in Gynecologic and Obstetrical Patients."

C. B. INGRAHAM, M.D.

Every pregnant woman is a potential case of hydro-nephrosis. As early as the sixth week of gestation, due to changes in the trigone and circulation to the uterus, the ureter is compressed and shows dilation. Constipation and colonic stasis are factors in producing infection. Very rarely is hydronephrosis caused by a fibroid tumor and the old theory of compression of the ureter by the pregnant uterus is being abandoned.

5. "Pyelitis from an Internist's Standpoint."

R. W. ARNDT, M.D.

Chronic foci of infection account for a large percentage of urological lesion, including thereby pyelitis. Either by selective action or by lowering the individual's resistance, thereby rendering him more susceptible to disease, foci of infection are potential danger points from which bacteria from time to time may enter the blood stream and cause disturbance in parts of the body which for any reason may have lowered resistance.

Discussion opened by: Dr. C. H. Boisservain
Dr. Wm. H. Spitzer
Dr. Foster H. Carey
Dr. John Ames

6. "The Diagnosis of Tracheobronchial Tuberculosis in Childhood."

I. D. BRONFIN, M.D.

Observations based upon a study of 300 Preventorium children. In that group we found 26 or 22 per cent who gave roentgen evidence of tracheobronchial glandular enlargement. The Clinical course of these cases is briefly reviewed and the pitfalls in diagnosis enumerated. (Lantern Slides.)

Discussion opened by: Dr. S. W. Schaefer
and Dr. J. J. Waring.

THURSDAY MORNING, SEPT. 13, 1928

1. Address—"Sunlight and Life."

JABEZ JACKSON, M.D.

President, American Medical Association 1927.

2. "Endocrine Disorders, Diagnostic Clinic."

WILLIAM ENGELBACH, M.D., St. Louis.

4. Address—"Rabies in Colorado."

E. R. MUGRAGE, M.D.

Rabies first reported in 1899. Statistics very inadequate. Was endemic, now epidemic in dogs. Symptoms may be protean in character and condition often not recognized. No human cases recently. Control measures discussed. (Lantern slides and motion picture film.)

5. "Leprosy." Illustrated with Lantern Slides.

O. E. DENNEY, M.D.

Surgeon U. S. Public Health Service.

HOUSE OF DELEGATES, 1928

<i>Delegates</i>	<i>Alternates</i>	<i>Constituent Society</i>
Arapahoe.....	Not reported	
Boulder.....	W. K. Reed.....	O. M. Gilbert
"	C. E. Sidwell.....	H. R. Dietmeier
Chaffee.....	G. H. Curfman.....	G. W. Larimer
Delta.....	Harry A. Smith.....	A. C. McClanahan
"	W. H. Lewis	
Denver.....	W. S. Snyder.....	W. J. LeRossignol
"	John Chase.....	John Inglis
"	G. George Lewis.....	Virgil Sells
"	Paul Connor.....	R. G. Smith
"	Tracy Love.....	J. W. Pollard
"	R. S. Chamberlain.....	Earl J. Perkins
"	O. E. Coleman.....	Geo. K. Dunklee
"	Allan Harris.....	C. H. Morian
"	H. R. McKeen.....	M. Ethel Fraser
"	J. E. Weatherford.....	M. G. Wright
"	N. B. Newcomer.....	L. W. Greene
"	W. H. Halley.....	L. V. Sams
"	L. W. Frank.....	E. F. Dean
"	C. H. Darrow.....	G. M. Blickensderfer
"	H. S. Finney.....	G. W. Miel
"	C. F. Kemper.....	Chas. Jaeger
"	G. A. Moleen.....	C. T. Burnett
"	J. M. Shields.....	S. D. Van Meter
"	J. A. Philpott.....	W. M. Bane
"	W. Finnoff.....	A. J. Chisholm
"	T. E. Beyer.....	M. Katzman
"	J. S. Bouslog.....	H. Wilcox
"	J. C. Ryan.....	W. B. Yegge
El Paso.....	C. E. Harris.....	P. O. Hanford
"	A. C. Holland.....	J. B. Crouch
"	Z. H. McClanahan.....	H. W. Woodward
"	F. A. Faust.....	W. A. Campbell, Jr.
"	O. R. Gillett.....	T. J. Evans
Fremont.....	C. H. Graves.....	R. C. Adkinson
Garfield.....	P. B. Porter.....	W. R. Tubles
Huerfano.....	W. S. Chapman.....	G. M. Noonan
Kit Carson.....	W. L. McBride.....	H. L. Williams
Lake.....	R. J. McDonald.....	F. J. McDonald
Larimer.....	W. B. Hardesty.....	T. C. Taylor
"	P. J. McHugh.....	S. A. Joslyn
Las Animas.....	J. R. Espey.....	
Mesa.....	E. H. Munro.....	C. W. Plumb
Montrose.....	Isaiah Knott.....	Fred Schermerhorn
Morgan.....	Not reported	
N.E. Colorado.....	E. P. Hummel.....	F. E. Palmer
N.W. Colorado.....	E. L. Morrow.....	F. E. Willett
Otero.....	B. Franklin Blotz	
Prowers.....	L. E. Likes.....	N. M. Burnett
Pueblo.....	H. T. Low.....	G. E. Rice
"	F. M. Heller	
"	G. Meyers	
San Juan.....	A. W. Robbins.....	H. A. Lingenfelter
San Luis Valley.....	Not reported	
Weld.....	O. F. Broman.....	Florence Fezer
"	N. A. Madler.....	J. A. Weaver

Scientific Exhibit

1. Silicosis. Bureau of Mines. U. S. Department of Commerce.
2. Cardiac Studies. C. T. Burnett. University of Colorado Medical School with the American Heart Association.
3. Demonstration of Special Laboratory Technique. E. R. Mugrage. University of Colorado Medical School.
4. Exhibit of the Colorado State Psychopathic Hospital. F. G. Ebaugh.

(Continued on page 279)

THE SECONDARY PATHOLOGICAL CHANGES IN TUBERCULOSIS OF THE SPINAL COLUMN AND THEIR MANAGEMENT*

A. STEINDLER, M.D., F.A.C.S.,

IOWA CITY, IOWA

The operative tendency springing from our present passionately technical era of surgery, has, as one might expect, taken a strong hold upon the treatment of tuberculosis of the spine and aroused it from the complacency and domination of conservative methods. We are now, however, in a period of reaction, and there is voiced a good deal of resentment against what is called operative radicalism. As long as the issue concerns details, it may be left to the specialists; but when it comes to a question of fundamentals, we feel it to be decidedly a matter for the general physician and as such it is presented to this assembly.

The point at issue is: shall tuberculosis of the spine be operated upon for the arrest of the deformity, for the control of abscess formation, and for the alleviation of spinal cord compressions? When we consult the literature we find the views on the merits and demerits of operative treatment are widely divergent. So instead of expatiating on my own experience in the matter, which weighs little, or that of operative extremists which weighs less, it may be more profitable to draw conclusions from some reflections on the pathological nature and paths of the disease.

The Deformity

The characteristic deformity of tuberculosis of the vertebral bodies is an antero-posterior kyphosis or gibbus formation, due to the forward collapse of one or more of the vertebral bodies. In the epiphyseal form, a considerable amount of destruction may take place in adjacent parts of the vertebral bodies, and the vertebral discs between them may become entirely absorbed without formation of an angulation. The destruction is here so uniform that it is not particularly affected by the superincumbent weight and no forward collapse of the vertebral body need occur. In this type the effect of body weight is rather to telescope or jam

the vertebral bodies together. When the central part of the body is destroyed, however, as in the central, or in the peripheral form, with more or less destruction of the anterior portion of the body, the resistance of the spinal column against weight bearing is overcome, and collapse with posterior angulation of the spine results. Against this impending deformity the bone reacts only very feebly. It is not until the process has become inactive that a halt is set to the deforming tendency. The angular deformity may attain the most extreme degrees and complete contact between the anterior surface of the vertebral bodies in neighboring sections may result.

Natural Check

In a number of cases we see that a natural check is put up against forward inclination of the body by the formation of proliferation or exostoses, or bony bridges spanned from vertebra to vertebra. Such bridges or synostosis may involve two neighboring vertebrae only, and often make their appearance even before a marked destructive change of the vertebral body is to be seen (Schiporet). As a rule, though, these natural provisions of defense prove insufficient. The new-formed bone seems to form along the fibers of the anterior and lateral spinous ligaments, which are firmly attached to the hypertrophic formations. This suggests the possibilities that one has to deal with deposits within the ligaments appearing in an attempt by nature to produce spinal fixation.

The pathological events which follow the destructive changes in the spine and which we have endeavored to picture briefly, determine the course and outcome of the disease and the vicissitudes of its clinical manifestations. From the viewpoint of prognosis, and especially of treatment and management, the practitioner must be familiar with the nature of the principal reparative changes of tuberculous spondylitis.

(a) Natural Fusion

Nature aims at bony fusion of the vertebral

*Read before the Arkansas Valley Medical Society, Feb. 11, 1928.

body, thereby limiting the tuberculous process. This fusion is either total or partial, and extends not only to the bodies themselves, but also often includes the transverse processes and arches. Occasionally this fusion is assisted by the production of osteophytic growth extending between the diseased and the neighboring vertebrae, and seen most extensively underneath the anterior longitudinal ligament. There is no direct relation between the degree of repair and the amount of morbid destruction. In some cases the bony fusion develops simultaneously with the persistence of carious foci.

In the majority of cases, there appears, together with the repair of the bodies in front, also fusion of the posterior portions of the spine: ankylosis of the intervertebral articulations as well as fusion between the laminae, the transverse, and sometimes even the spinous processes.

The formation of the gibbus, or the posterior deformity, must be viewed as a phenomenon of repair. As we follow the course of the disease in the x-ray picture, we see that in children the repair of the vertebrae appears as complete bony fusion of one or two of the involved segments. In adults this bony fusion is the exception. Here, healing occurs by granulation tissue, which is finally transformed into healthy scar and connective tissue, consolidating the spine by fibrous adhesions. Mention has also been made of the bony bridges uniting the affected vertebrae which often simulated osteoarthritis. They are easily demonstrable in the x-ray picture. In accordance with a previous statement that destructive and reparative processes are often found to run parallel, we find that fibrous scar masses not infrequently include caseous material or sequestra. Such foci remain latent for a long period of time, but always retain their infective character, giving rise to recrudescence of the process in later years.

(b) Blockage

The deforming process finds a natural check in the formation of a bone block formed by the collapsed vertebral bodies. Because of the fibrous union in healed adult

tuberculosis of the spine, this blockage is never as definite and absolute as it is in children. In the mechanical effect of certain operations of the spine this phenomenon of blockage becomes of great significance (see palliative operations).

Operative Treatment of Compression Paralysis: Spinal Decompression

1. Indication

Laminectomy is indicated in tuberculosis of the spine when the conservative treatment fails to relieve the compression paraplegia. If an abscess in the retromediastinal space can be assumed to be responsible for the compression symptoms, then the above mentioned methods of drainage of the abscess are given first consideration. One should remember that in the majority of cases paraplegia disappears under prolonged recumbency and traction. There is, therefore, only a small minority in which decompression by laminectomy becomes necessary.

As a rule, the indication for this operation is made only after a long and patient attempt to relieve compression symptoms by conservative means. Occasionally, however, one must act quickly: for instance, in the rare cases in which the spastic character of the paralysis suddenly changes to the flaccid type, or in cases in which there is evidence of sudden collapse with bony pressure against the spinal cord. It has been claimed that mild paraplegias are influenced by operative fusion of the spine, but it is doubtful if the fusion has any direct influence upon it. It is more likely that the recumbency associated with such an operation, exercises a beneficial effect upon the compression symptoms.

The Fusion Operations

The fusion operation provides absolute immobilization of the spine by transforming the posterior column into a solid and unyielding sheet of bone. This fact has been amply demonstrated by post-operative biopsies and by autopsies; such fusion can be accomplished in children as well as in adults. The immediate mechanical effect of the fusion as an absolute means of fixation of the spine is the only feature of which we may be reasonably certain. All beneficial

effects of the fusion rest upon the soundness and completeness of this internal splinting. On the other hand, the importance of such complete immobilization for the course of the disease is not to be under-estimated. Though it does not prevent or influence the formation of abscesses or the occurrence of spinal compression, this absolute internal fixation makes the collapse of the spine and the reinfection of opposing bone surfaces of the bodies much less likely. Accordingly in a great number of cases, the final course of the disease is favorably influenced by the direct effect of complete immobilization. In children, undoubtedly, the indication must be more restricted than in adults, but in the latter, especially if the seat of the disease is the lower dorsal or the lumbar spine, the fusion operation is of distinct benefit.

There can be no objection to operation in early cases so long as it is realized that they require recumbency, regardless of operation until the adequate stage of repair is reached. In later cases, it is obvious that either the destruction leading to deformity must have come to a halt, so that the graft functions merely as a weight bearing support and not as a brace against forward bending, or else operation must also be combined with recumbent treatment until, again, this halt is reached. In other words, in those regions of the spine in which the forward bending stress prevails, i. e., in the dorsal region, a graft or fusion will not prevail against it without a sufficient degree of natural repair. This principle is applied in practice by observers like Waldenström and others, who make it a point to carry out the redressment of the deformity before operation.

Resume

Tuberculosis of the spine must be considered as representing a tertiary manifestation of systematic tuberculosis. Therefore, the whole management and plan of treatment serves primarily the interests of the patient's constitution from which ultimately must come the resources that control the infection.

Tuberculosis of the spine, on the whole, does not take a malignant course. The ma-

jority of cases are inclined to follow a definite biological cycle from invasion to repair. It is, consequently, amenable and responsive to persistent and timely curative measures.

In the nature of the condition, this biological conclusion occurs in children earlier and more definitely with the formation of a bony block, whereas in adults the ultimate result of the pathological process is scar tissue, which is less reliable both as far as the arrest of the deformity and the termination of the disease itself is concerned. For this reason cures accomplished in childhood are in general more permanent than those of middle and later age. The deformity is no indication of the persistence or even the severity of the disease.

Of all external forces of local nature by which the course of the disease is unfavorably influenced, weight-bearing is the worst. Unlike mobility of the spine, it cannot be eliminated by muscle contracture, but is a constant and efficient force making for deformity and bone destruction. Therefore, measures which eliminate weight bearing are, in the initial stages as well as later, by far the most efficient means we have to control the further course of the disease. Of all measures, recumbency is the only reliable one and must be given the fullest consideration, regardless of the time consumed until its ends are fully achieved.

Under the recumbency treatment one can expect full control over the development of deformities of the lumbar and lower dorsal spinal section, and to a lesser degree, control over the upper dorsal and cervical spine.

Abscesses in the majority of cases will disappear, thereby avoiding incisions and punctures. The indication of heliotherapy and other hygienic measures will become obvious from the foregoing remarks; they are adjuncts to recumbency treatment.

Ambulatory treatment supplants recumbency in stages when systemic repair in the tuberculous region is already advanced to such a degree that collapse of the spine is no longer to be feared. All of the general conditions demanding bed-rest must have disappeared before ambulatory treatment can be instituted. The general condition

and, largely the x-ray picture, decide this question. The x-ray also determines the point at which external fixation during ambulatory treatment can be relinquished; here, also, one must be cautious and take recourse to other corroborative evidence of accomplished healing from general and local signs in as much as apparent consolidation in the x-ray picture of the involved bone does not always mean complete healing.

As far as the palliative operative methods of internal splinting and spinal fusion are concerned, the situation may be summed up as follows: they may be undertaken early or late, with the understanding that operation will not replace recumbency. That is to say, spinal fusion in early stages will be beneficial only if combined with recumbency treatment to almost the same extent and duration as in non-operative cases.

Later in the ambulatory period, however, the advantage of internal fixation of the spine becomes more apparent, because the immobilization provided thereby is vastly superior to that offered by external appliances; so that, if any curtailing of the duration of the disease is accomplished by palliative operative methods of fusion or internal splinting, it is the ambulatory stage and not the stage of recumbency which is shortened.

As much as conservative methods are advisable in pure tuberculous abscesses, as much is radicalism frequently necessary in dealing with secondary septic infections. The surgery of drainage of large, deep, tuberculous abscesses which have become septic, is by no means a settled point. Statistics on the end-effect of these drainage operations are still meagre. In view of the severity of the condition and the very unfavorable outlook in general, more study and more data on this point is urgently needed.

Paraplegia is the next important complication in tuberculous spondylitis. It yields to recumbency and extension in the vast majority of cases of children. In the adult and more advanced age, however, there are more and more exceptions. It is advisable to be conservative and patient in the management of compression paraplegias, and to allow sufficient time for the effect of conservative treatment to become manifest. It is equally necessary, however, to recognize promptly the many exceptions which will resist conservative treatment, and which demand operative measures, so that the operation may be performed sufficiently early, that is, before signs of sensory disturbance and flaccidity have appeared.

TUBERCULOUS PLEURISY

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Unless accompanying a pneumonia, pleurisy should always be considered as tuberculous in origin until the contrary is proved. Tuberculous pleurisy may be acute or chronic. In the former some exudate is usual although not invariable. The acute disease may pass into a chronic type in which the effusion may not be absorbed for a year or more or if absorbed the patient may suffer from pain and slight fever for many months. The disease may arise from subpleural tubercle deposits, or from bacilli which are blood-borne; and the latter route probably originates the bilateral acute pleurisy which occur. An acute pleurisy on one side may be followed in a longer or

shorter time by a similar condition on the other side and such may become chronic when there is no evidence of pulmonary disease.

As with pulmonary tuberculosis, pleurisy is a secondary infection in a subject sensitized by former disease. There has been much debate as to whether pulmonary tuberculosis arises from exogenous or endogenous reinfection, but certainly tuberculous pleurisy, which is so often the forerunner of active pulmonary disease, cannot be due to exogenous reinfection. Pleurisy preliminary to pulmonary tubercle is a matter which will be discussed. Chronic pleurisy is usually concomitant with chronic pulmonary disease.

Historical

Laennec,¹ in 1819, wrote most complete descriptions of pleurisy and doubted if any pleurisy occurred without some slight effusion. He also pointed out how rapidly effusion could occur and also how rapidly it might be absorbed. It is of interest that Laennec recalled that Hippocrates was familiar with pleuritic adhesions; and he ridiculed Vernojus that pleuritic adhesions were a result of laughter!

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Laennec described the acute hemorrhagic pleurisy which we occasionally see, and which Paterson, in recent years, produced experimentally, by introducing large numbers of tubercle bacilli into the pleura of sensitised guineapigs.

In 1805, Bichat² wrote, "Pleurisies produce phthisis."

Louis,³ in 1825, in his researches on phthisis, states that, "Double pleurisy is in my estimation synonymous with tubercle, or at least with organic affection of the lungs." "Pleurisy and pneumonia exercise a very different influence on the progress of phthisis; that while the one produces no evident effect in this direction, the other (pleurisy with effusion) must in a great number of cases accelerate the fatal termination of the disease."

Louis was in advance of his day as may be judged by his advising ice on the chest for haemoptysis and enjoining silence. In treatment he failed to endorse chlorine gas which was then in vogue for pulmonary disease, and in general his observations are most sound. The pathological studies of Louis are of the greatest interest and also his clinical descriptions. In regard to pleurisy as a predisposing factor in pulmonary tuberculosis, Louis writes, "I have found pleurisy when it attacked individuals in good health—invariably terminate by the recovery of the patient. Nor did it leave after it any trace of disease . . . nothing justifying a suspicion of the existence of a tuberculous affection, even in the latent form, of the lung. This statement is founded on the observation of nearly two hundred cases of simple, uncomplicated pleurisy which have

fallen under my notice in the last fifteen years." Louis, however, does not specify the number of these patients who had pleurisy with effusion. In his pathological studies, he notes a relationship between the amount of pleural adhesion and disease of the lung. In general the larger the cavities found the greater area of adherent pleura.

In 1837, we read in Stokes⁴ *Diseases of the Chest*: "The effusion may be absorbed rapidly, or with extreme slowness, and the patient be restored at once to health, or pass through the doubtful convalescence of Laennec, under which circumstances he runs the greatest risk of pulmonary consumption."

In more recent years we find the following in the writings of Bezançon.⁵ "At adolescence a pleurisy will often have revealed the impregnation of tubercle and it will only be a few years later that the pulmonary localization will manifest itself. In some cases, pulmonary disease will light up ten to twenty years later and subjects of pleurisy in youth may not become phthisic until mature or old age." Bard and Bezancon write concerning the "postpleuritique" pulmonary tuberculosis which develops some years later from the subpleural deposits which have long before originated the pleurisies.

Symptoms

Pain of varying degree is usual. The famous Huxley wrote to a friend in 1887 that he had had to forego all engagements "by reason of a devil in the shape of muscular rheumatism of one side," and to another friend he referred to this pain "the similitude thereof is a bird of prey periodically digging in his claws and stopping your breath in a playful way." This "rheumatism" was finally diagnosed as pleurisy. Huxley had several attacks and even refers to some adhesions interfering with his bel-lows!

Shelley was another victim of chronic pleurisy, and stanzas, written in dejection near Naples in 1819, during a relapse, tell of another symptom—lassitude:

"Alas! I have nor hope nor health,"

"I could lie down like a tired child,
And weep away the life of care

Which I have borne and yet must bear."

With many patients utter exhaustion may precede and follow pleurisy, and nagging pains or distress in the chest may be present. Such conditions were present in a woman of thirty-six for two years before a definite attack of pleurisy with effusion developed. In this patient the physical and x-ray examinations had been negative but a slight daily elevation of temperature occurred. The writer has seen pleurisy with effusion develop in a nurse on duty who was quite unconscious of any subjective symptom until a marked shortness of breath occurred.

Pleuritic pain may be present when no "rub" can be detected, and it also happens that a loud pleuritic rub may be heard over a large area of a lung and no pain may be present. Laennec observed that pain might occur on the side opposite to that which had pleuritic disease. This referred pain was observed in a patient in my practice who had broken a rib in coughing—the pain was on the opposite side of the chest.

The pains of diaphragmatic pleurisy are well known today, and the difficulties they give rise to in differential diagnosis. During my work in a base hospital in 1917, I advised some patients with lobar pneumonia to rest on the affected side. This they were usually unable to do because the initial increased excursion of the diaphragm on the dependent side augmented the pleuritic pain. I have since called attention to posture as a diagnostic test in diaphragmatic pleurisy.

The symptoms of tuberculous pleurisy may be similar to those of pulmonary tuberculosis, such as a dry cough, malaise, fever, accelerated pulse and digestive disturbance.

Diagnosis

Judging by the large number of pleuritic adhesions found at autopsies, pleurisy must be overlooked very often when it is present. All chest pain, and pain referred to the shoulders, arm, and abdomen should lead a physician to suspect pleurisy. Sometimes such pains may originate from diseased tonsils and teeth. Cystic breasts in women, certain heart conditions, herpes zoster, gastric and spinal disease, and other possible causes may produce chest pains.

Percussion is of great service in detecting

change of resonance, and percussion with the tips of all four fingers should be used over the lung bases.

Auscultation enables the physician to detect quiet breathing and the pleuritic rub. A method of auscultatory percussion has been described by the author⁷ which is of service in detecting pleuritic effusion. Palpation of the trachea⁸ and of the position of the heart apex beat are important.

With all of Laennec's masterly investigations of the diagnosis of chest conditions, he failed to place on record the rub of pleurisy. This failure would seem to be the more curious inasmuch as his teacher, Bichat, wrote concerning the "**bruit**" which patients themselves sometimes observed with pleurisy. However, Laennec's aegophony is of distinct value in detecting pleurisy with effusion. He also called attention to the bulging of the side in pleurisy with effusion and the retraction of the side which followed healing. Laennec also noted the continuance of the respiration along the spinal column in patients with effusion. Whenever possible, good x-ray films of the chest should be carefully studied. Any difference in the lighting of the two sides should be noted and the pleural sinuses carefully compared. Subpleural deposits are occasionally seen.

Treatment

Rest, by means of strapping posture, and heat, by means of an electric pad, are the best symptomatic methods of treatment.

A patient who develops a tuberculous pleurisy should be given a long period of general rest, just as a patient with pulmonary tuberculosis; and the regime should be continued for many months after all constitutional signs have ceased. It may happen at times that a definite parenchymatous tuberculous lung lesion was present at the onset of the pleurisy, which became absorbed during the illness. In these and other cases the x-ray pictures taken after convalescence will lead physicians to be too optimistic regarding the future.

There can be no doubt that many of the most malignant cases of pulmonary tuberculosis are in patients who give a history of pleurisy with effusion some years previous

to their coming for treatment of pulmonary disease.

The effusion which accompanies tuberculous pleurisy will usually be absorbed and paracentesis is not always necessary. In some patients who present definite pulmonary lesions the opportunity of the effusion may allow artificial pneumothorax to be undertaken. With some patients it is exceedingly difficult to decide whether this procedure should be followed. If the opportunity is neglected the development of adhesions will prevent the operation, should the progress of the pulmonary process require it. In a few patients we have succeeded in administering artificial pneumothorax when a history of completely reabsorbed pleurisy with effusion has been known. This experience is, however, rare.

Should extensive parenchymatous lung lesions be recognized, especially with cavitation, then pneumothorax treatment should be instituted, provided the opposite lung is sufficiently free from disease. The tuberculous effusion may at times become purulent. If uncomplicated by secondary organisms repeated aspiration usually results in cure.

Discussion

Tuberculosis in any part of the body requires a long duration of time for elimination or arrest. Tuberculosis of the pleura originating in an apparently healthy individual should not be regarded lightly. Two or three months of rest may bring about apparent cure, but actually one to two or three years of a carefully regulated life are necessary in order to safeguard such patients from future pulmonary disease.

A study which would seem worth while in pulmonary tuberculosis would be to ascertain the end results of a large number of patients who have at some time suffered from tuberculous pleurisy with effusion.

L. Brown⁹ in discussing the relative value of diagnostic data, places the history or presence of pleurisy with effusion first among five criteria.

Marfan considered that subjects who had recovered from lupus or tuberculous glands were refractory to the development of pulmonary lesions.

Similarly, tuberculous lesions in joints and bones appear to have value in preventing serious lung disease. Possibly in some patients an attack of tuberculous pleurisy may render the lungs more immune.

Theoretically, pleurisy, which is followed by adhesions, should render service by contributing to the "rest" of the organ; or possibly the reverse might happen.

The general optimism, however, regarding the outcome of pleurisy with effusion is not justified and pleuritic disease should be regarded almost as seriously as pulmonary hemorrhage.

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HAY FEVER*

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Records of the American Hay Fever Association indicate that the victims of hay fever in the United States number over a million, and that the number is steadily increasing both apparently and actually. The apparent increase is due to the fact that

many cases of hay fever, especially those occurring outside of the most common fall season and formerly classified as summer colds, rhinitis, recurrent catarrh, and so forth, are now more generally recognized as hay fever. The increase is also real as the increase in facilities of transportation by means of automobile and trolley cars has re-

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sulted in an increase in the development of suburban settlements, practically all of which are more or less directly exposed to pollen infestation. In view of the importance of hay fever as regards both the large number affected and the length and severity of the symptoms, treatment of this disease demands the most careful consideration.

Plants which Cause Hay Fever. By certain easily recognizable features the plants which cause hay fever may be distinguished from those which do not. Briefly they are very numerous, widely distributed, often ubiquitous, flowers are small and inconspicuous, devoid of nectar, without fragrance, and in many cases so reduced anatomically that only the stamens and pistils remain. Pollen grains are very abundant, small light and dry, and therefore easily carried by the wind, and are capable of floating in the air for many hours. In a word, the hay fever plants are anemophilous.

On the other hand, the plants which do not cause hay fever are less numerous, have conspicuous, brightly colored, well developed flowers, often fragrant and producing a large amount of nectar. The pollen grains are few, large and heavy, frequently sticky, not carried far by the wind, and capable of floating in the air only a short period of time. In a word, they are entomophilous, adapted for fertilization by insects, attracted by the nectar or the bright color and fragrance of the flowers. Pollens of the hay fever group are further characterized by an ability to produce in sensitive persons certain disagreeable symptoms upon contact with the conjunctiva, or the mucous membrane of the nose, or, upon being rubbed into a scratch on the skin. Since hay fever is caused by pollen floating in the air, coming in contact with the eyes or some part of the respiratory tract of a sensitive person, only wind borne pollens commonly cause the disease. The pollens of golden rod, of rose, sunflower, sweet peas, and dandelion are insect borne and not wind borne, practically never found in the air, and therefore, although popularly considered causes of hay fever, are with the exception of the latter, dandelion, of little or no importance. Dande-

lions sometimes cause hay fever in children who handle the blossoms which often thoroughly cover their natural playgrounds, the lawns and the vacant lots.

---**Hay Fever Survey.** It is necessary before a comprehensive idea can be obtained concerning the plants, the pollens of which cause hay fever, that an accurate survey of various regions inhabited by hay fever sufferers be made. This has been done in many places, and we, in this community, owe much to Dr. William V. Mullin, formerly of this city, who made the first comprehensive survey around Colorado Springs, which was also one of the first surveys made in this country. Dr. Mullin's survey consisted of determining the date of first pollination, when the pollen became abundant, date of last pollination, the habitat or locality of the composite, grass or tree. These data were carefully recorded. It has been stated that the physician alone is hardly competent to complete the above mentioned work. The services of a trained botanist are necessary. Blanket surveys cover too large a territory, and an attempt to give lists for each state may not be satisfactory.

Collection and Preparation of Pollens. Collection of pollen is a task that demands both knowledge and care. The species must be accurately known and its flowering period must be followed in some detail. Securing an adequate amount of pollen is a time consuming task, and for this reason it can be done most economically during the period of maximum flowering. It is usually desirable to take entire plants or large portions of the flowering part, as under favorable conditions anthers may mature and shed pollen for several days. The actual collecting of the pollen itself is best done in a room free from dust and movements of air.

The pollen is allowed to drop on sheets of white paper and it is then passed through a sieve of bolting cloth to remove flower particles, dust, etc. Contamination is avoided by placing the various clusters at such a distance from each other that movement about the room will not cause admixture with another pollen. The latter is fatal to trust-

worthy results, just as the practice of the grinding up of flowers makes it impossible to properly standardize the extracts used, or to be certain of the role played by the chemical constituents and the flower parts or leaves. Before being bottled, pollen must be thoroughly air dried, or better still dried in a water bath at low temperature to keep out moulds and bacteria. The plants should be collected away from traveled roads and dusty places to secure them as clean as possible. It is also best to anticipate the pollination in the time by several days, in order to insure pollination in the collecting rooms. It is a wise precaution to keep voucher specimens of all materials collected. By observing these precautions and admonitions it seems we are getting pollens more free from contamination each year. It is also very probable because of the much better results which are now obtained and were obtained a few years ago in this locality that dry pollen improves with age.

Diagnosis of Hay Fever. In spite of all that has been written regarding plants which cause hay fever, physicians throughout the country are still testing patients with pollen, obtained from various companies, which do not produce hay fever in this locality or in other localities. The usual method of arriving at a decision as to the offending pollen in hay fever, has been to test the skin reaction of the patient with all the pollens available. If all reactions were absolutely conclusive and if the list of pollens used was complete the results might be satisfactory even if laborious, but it must be remembered that just because a patient gives a skin reaction to a pollen or pollens, it does not necessarily follow that that particular pollen is responsible for the hay fever. The method instituted here by Dr. Mullin and still followed seems to be both rational and scientific. It involves: First: A thorough pollen survey of the whole region supplemented, if possible, by one of the patient's immediate environment. Second: An accurate determination by the pollen plate method of the specific kind and relative amount of pollens around the patient's home, as soon as possible after the onset of

symptoms. Third: A detailed history of the patient's case. Fourth: Appropriate skin tests as indicated by the previous study.

A word may be said here about history. It is not so important to know how long a patient has had hay fever as it is to learn when and where he first developed it, whether he has gone through a season without an attack, and if so, where, the date of the appearance of the attacks and their duration. The date and duration of the attack can then be compared with the pollen survey of his own region, and a list of plants likely to be responsible narrowed to a comparatively small number.

The skin test is next in importance and the scratch method and intradermal test are both very commonly used. In Denver where large numbers of patients are being tested and treated each year by Dr. James Waring and his associates, the scratch method is used entirely. This method with which you are all familiar needs no description. The intradermal method is my choice, both from the standpoint of minimizing a reaction in a hypersensitive patient, and also because tests on patients by both methods have shown it to be the most sensitive. Both care and experience are essential in the clinical interpretation of skin reactions just as in the interpretation of other tests such as the Shick and Dick tests.

Skin reactions are influenced by the following factors:

1. The preparation used.
2. The method of application.
3. The length of scratch made.
4. The site of injection.
5. The degree of cellular sensitivity.
6. The amount of protein brought in contact with the cells and the amount of solution injected.
7. Time the patient is tested. Whether preseasonal or after the onset of symptoms.

The reactions are much more marked after the attack begins. By using a weak solution, 1:20,000, severe, systemic reactions from these tests will seldom occur. Only one such reaction has occurred during the past few years. In addition to the number of

pollens used for testing it is also necessary to test the patient for protein sensitization, since food proteins have now been shown to definitely cause attacks of hay fever. These latter tests are all done by the scratch method, and the newer form of proteins used for testing is made up as a paste and is much easier to handle than the older form of powder which necessarily had to be placed in solution before the test could be done.

Treatment. Correction of nose and throat abnormalities is advisable in all patients. It is not necessary to mention all of the former treatments of hay fever, since it is generally conceded at this time that the view of Allergic cause of hay fever prevails. Of the proteins which cause hay fever, pollen is the only difficult one to handle. The easiest and most satisfactory form of treatment is pre-seasonal immunization of the patient. This is, however, impossible to do in many cases since the patient will not report to the physician until symptoms have developed. Active treatment after the attack has developed was formerly quite unsatisfactory in a large percentage of cases; the results in a smaller number, however, justified its continued use, with increasingly better results obtained each year. During the season of 1926 all but three patients responded to treatment. A few patients presented such interesting points that a brief resume will be given.

One of these patients, a youth living in the country, was free from hay fever following his first treatment, for the first time in several years. He had necessarily been employed at harrowing and one day he ran into a patch of young Lambsquarter. He immediately developed hay fever and from then on it was impossible to relieve him of his symptoms by treatment, although better results might have been obtained if treatment had not been discontinued when the patient became discouraged.

The second patient had her first attack of hay fever on coming to Colorado Springs from Nova Scotia the summer of 1925. She did not know she had hay fever until her symptoms which had begun in July ceased with the first frost of the year. In the

spring, 1926, she had a recurrence of symptoms when Cottonwood began to pollinate. She showed a four plus reaction to Cottonwood when tested, and four plus to Giant Ragweed. All other tests were negative. She remained free from hay fever, although she took treatments rather irregularly of small doses of Cottonwood, 1:20,000 dilution. At the same time she was given pre-seasonal immunization with Giant Ragweed, also given in small doses, 1:20,000 dilution. The twenty-first of June she began to have hay fever and when retested she reacted four plus to Lambsquarter to which she had not been sensitive when previously tested. Treatment was begun with small doses of Lambsquarter, 1:20,000, but the patient discontinued these when results were not obtained after four or five doses.

The third patient, a girl twenty years of age, who lived in the country, obtained complete relief from symptoms until the dose of vaccine was increased .06, whereas the former doses had been increased but .05 each, immediately had symptoms of hay fever and when two smaller injections of a weaker solution did not relieve her, she discontinued treatment.

In the summer of 1927 every patient treated, thirty in all, were relieved and twenty-seven of these thirty were entirely free from symptoms during the entire season. One extremely satisfactory case will be mentioned. The patient first appeared for treatment September 8, 1922, during the first attack of hay fever he had had. Since it was late in season, he was advised to return the following year to be tested. August 15, 1923, while returning from a three weeks' trip to Montreal he awoke near the Colorado line in Kansas and had a severe attack of asthma, which continued until he received adrenalin after arriving in Colorado Springs. He was tested the following day and he reacted to Sage four plus, Giant Ragweed three plus, Eastern Ragweed three plus, Lambsquarter two plus, and Prairie Ragweed one plus, 1:500 dilution being used for testing. He was treated with Sage and Giant Ragweed and obtained some relief until frost occurred September 5, 1923. May,

1924, he reported that he had begun to sneeze three days before and thought he had hay fever. At that time he was sensitive to Cottonwood 1:1000 dilution and later he gave a reaction to Russian Thistle three plus, Lambsquarter four plus in 1,100 dilution. He was given small doses of a 1:10,000 Cottonwood with no relief; he was later given Sage, and Common Ragweed, but had hay fever most of the summer even though he was quite regular in taking treatment. In 1925 Cottonwood was begun May 2nd, and Giant Ragweed and Sage added, but he had hay fever most of the summer. In 1926 hay fever began the last of April and two weeks later he reported for treatment. Since he had been receiving doses of 1:10,000 dilution in the past he was started on a 1:20,000 dilution, increased very slowly and with very gratifying results. He was at the same time tested for summer pollens and he reacted four plus to a 1:20,000 Russian Thistle and Green Sage. Ragweed was negative. He was free from hay fever until July 2nd and then he reported that he had had slight hay fever the preceding day. He was tested with 1:10,000 Lambsquarter and reacted four plus. Four days later small doses of 1:10,000 Lambsquarter were given and he was free from hay fever until July 16th. A smaller dose of Lambsquarter was given that day with relief from symptoms. The patient had no hay fever until August 23rd, at which time he was treated and gave a reaction to Giant Ragweed. This was then added and after five doses beginning with .05 c. c. of 1:20,000 dilution and increased .05 every third day he was relieved until the end of the season. In 1927 the patient reported for treatment May 2nd, stating his hay fever had begun two days previous. He was given .05 of 1:10,000 solution of Cottonwood which aggravated his hay fever. He was given .02 of 1:20,000 Cottonwood three days later and treated on alternate days without increasing dosage until the fourth dose had been given, at which time he was completely relieved. He reacted to Green Sage and Russian Thistle 1:20,000 and Lambsquarter 1:20,000 dilution and increased .05 every with complete relief. This case has been

mentioned in detail because it shows the mistake of giving too large doses to an over-sensitive patient. Just as we have learned to attempt to treat the patient after symptoms have developed with good results, so, long standing and obstinate cases have been quite successfully immunized by careful, small dosage.

Mrs. A., age 48, had had hay fever for thirteen years, when she appeared for treatment August 19, 1926. She had all the classical symptoms of hay fever and was decidedly uncomfortable each year from the last of June or the first of July until frost occurred. She was tested with 1:20,000 solution and reacted four plus to Russian Thistle. She returned the following day to state that she had been very much relieved by the tests. She was given .02 of 1:20,000 Russian Thistle, dosage was gradually increased .01 every second day with complete absence of symptoms until treatment was discontinued the 13th day of September. On May the 24th, 1927, immunization was begun, the first dose was .05 of a 1:20,000 solution of Russian Thistle. Three days later she had .15 of a 1:20,000 solution. This was increased to .50 rather rapidly and on the 8th day of June she was given .05 of a 1:10,000 and the 21st of June she was given .05 of a 1:5000 solution. The 28th day of June she was given a 1:1000 solution at which time she discontinued treatment. She had no hay fever during the entire season, the first time in fifteen years.

Another interesting case was one of a physician living in Trinidad, which town has the same pollens as we have here. He reported for treatment April 20, 1926; age, 55 years. He had had hay fever and asthma, beginning about the first of July for forty-five years, with the exception of two years when he lived in Reno, Nevada. The third year he lived there, however, he had asthma so severely after an attack of hay fever that he left there, moving to Trinidad. He was tested with a 1:10,000 solution of all spring and summer pollens and he reacted to Kochia four plus, Lambsquarter four plus and Green Sage four plus. He had such a severe reaction from the tests which were given when

he was passing through on his way to Denver by motor, that his arm was swollen to the shoulder before he arrived at his destination. He was given 1:20,000 Kochia and Lambsquarter, and instructed to be very cautious about increasing the dosage. On May 25th he was given a 1:10,000 solution of Sage, Kochia, and Lambsquarter and on June 23rd he was given a solution containing the three pollens, 1:5000 dilution. He reported at the end of the season he had some hay fever but no asthma and was quite delighted with the results. In 1927 he followed the same course with relief.

Perhaps the most spectacular case was that of a woman, age 48, from Hutchinson, Kansas, who reported on August 16, 1927. She had never had hay fever before that year. Between July 1st and 10th—she could not say definitely, since she did not realize she had hay fever until about the 10th—she began to have classical symptoms of this condition. She had come to Colorado twelve days before she was referred to me. She had gone to the top of Pike's Peak, to Cripple Creek, and other places in the surrounding mountains with no relief at any time. She was tested with 1:20,000 dilution of all summer pollens. She reacted to Russian Thistle four plus, Kochia four plus, Green Sage, three plus, and Eastern Ragweed two plus. She was treated with Russian Thistle, Kochia and Green Sage 1:20,000 dilution, .05 c. c. of each being given the same day tested. The patient returned the following day stating that she had been entirely free

from hay fever since a few hours following the tests. She was given .02 Russian Thistle, Kochia and .01 Green Sage. She returned on the 19th stating that she did not think she needed more treatment, as she had had no hay fever. She was, however, prevailed upon to take .04 Russian Thistle, Kochia and .02 Green Sage. On the 23rd, she returned, stating that she intended to take just one more shot. She was given .06 Russian Thistle, Kochia and .02 Green Sage. She had had no hay fever since being tested. She was advised to take immunization for local pollens next year.

In conclusion it may be said that these few years experience have emphasized the treatment of active cases of hay fever, since excellent results may be obtained. Weak test solutions should be used for diagnostic purposes. Complete protein tests should be made on every patient. In treating an active case the very weakest dilution should be employed, then if results are not obtained the dosage should be increased rapidly until the patient is relieved. If the patient develops hay fever after having been free during the season or after having been treated, tests should be immediately made to see if the patient has become sensitized to an additional pollen.

I have found this to be the most gratifying work I have ever done in medicine, and it has only been made possible by the careful cooperation of Professor Ralph Gilmore of Colorado College.

SOME EXPERIENCES IN THE DIAGNOSIS OF BRAIN TUMOR*

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One may profit by one error more than by several successful cases. The operation or autopsy throws much light on the dark places in our assumptions and we can look back and see the defects in our observations or our reasoning. So a post-mortem made over our methods of diagnosis like a post-mortem of a bridge hand may improve our next game.

The diagnosis of brain tumor consists of three things: 1st. Is it a tumor? 2nd. Where is it located? 3rd. With what type of tumor are we dealing? One might precede all three with the question: Do we have an organic lesion in the brain? Having settled the fact of the presence of such a lesion by the usual methods, then the question of tumor looms large. The text books teach us that severe and constant headaches, vomiting, slow pulse, choked disk, symptoms

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of increased intracranial pressure are the general symptoms of brain tumor; but abscess, meningitis, encephalitis, even at times nephritis may do all these.

In the case of tumor there may be associated symptoms of irritation or paralysis and by the gradual extension of them to neighboring nerves or centers may be determined the position of the tumor and the direction of its growth. On paper it sounds very easy, but confronted with the concrete case it is often an exceedingly difficult matter. To obtain an accurate history requires painstaking care, especially as often the mentality is liable to be affected, the memory poor, the patient unconsciously or perhaps wilfully misleads you, to say nothing of the personal equation on the part of the physician which tends to make him lay stress on certain points in the history where other facts are the important ones. Then, too, at times the characteristic headache is not present, vomiting is rare or not cerebral in type and many times choked disk does not appear until late.

From the neurological standpoint localization at times is much more simple than the question of tumor. In other cases it seems impossible to definitely locate the growth, and to my mind this is the field for ventriloquy—a method of considerable danger. In this procedure or the method of air introduced into the spinal canal the x-ray is valuable, but as a direct method its value is somewhat limited.

The type of tumor many times cannot be decided. A history of tuberculosis, cancer elsewhere, the presence of syphilis, lead to the suspicion of these types. Sinus diseases or empyema suggest abscess, otherwise the law of probabilities based on frequency of the various types is our only guide. It is not the purpose of this paper to go into the fine diagnosis of tumors but to rehearse five cases in which mistakes were made and try to see where and how these occurred.

CASE REPORTS

Case 1. The first case was a man of 44 years (seen July 29, 1927, for Dr. Martin), who two weeks before noticed difficulty in buttoning clothes with left hand—drops things and misses things he reaches for with this hand. Thought it was better on day of examination. Always a nervous individual. Came to Colorado in 1913 for

tuberculosis. Had several operations for hernia. Drank beer while in college. No alcohol for years. Denied syphilis, and a spinal fluid test at Mayo's sometime previously was negative.

All cranial nerves were normal. There was apparently a slight loss of pain sense over back of left hand on radial side. Power was apparently not lessened. Left triceps reflex more active than right. Others active but equal. Stereognostic sense of left hand normal. Blood pressure 144/100.

August 17 disks normal. No strabismus nor nystagmus. Reflexes equal and active. No abnormal reflexes. Power good in left hand. All movements of fingers good and equal on both sides. Gait and station normal. Finger nose test showed ataxia in left.

September 26. Stereognostic and joint sense absent on left hand and left toe joint sense normal. Reflexes equal.

October 3. Left knee jerk was possibly slightly more active. He then complained of more headache. No vomiting. No disk change. Went to Denver where a diagnosis of tumor in right cerebrum was made. Operated at Rochester and a glioma partially removed. Returned with almost complete loss of power in left face, arm and leg. A marked swelling of scalp and brain through an opening in right parietal portion of skull, intense headache and more or less incontinence of urine. Dr. L. G. Brown gave a few deep x-ray treatments to area involved which increased the headaches at first. In a few weeks headache became better and now this area of protrusion is somewhat sunken and headaches are gone. He is able to walk about with a hemiparetic gait, face is nearly normal, hand and arm much improved though to less degree than face and leg. Optic disks markedly swollen on return from Rochester have cleared up almost entirely.

Had this patient presented himself with headaches, vomiting and with any evidence of optic disk changes doubtless the opinion would have been in favor of tumor because of his age and in spite of the sudden onset. Probably the sudden onset and fairly great frequency of vascular lesions of this kind with negative disks weighed most in favor of vascular disease. The location was not difficult. Judging the matter at this time the gradual progress of symptoms, the increasing headache with disk changes made diagnosis certain.

Case 2. A single woman, Age 51. First examined December 6, 1926 (Dr. Tucker). Complaint was no power in left hand. Can shut it but seems unable to hold things. It tingles for a few minutes at a time. This began in October, 1926, two months previous. For the past two days wrist felt as if in vise. When the arm feels queer she can't see well to read. At times for 5-10 minutes has pain in right temple and parietal region. In shoveling coal left arm feels as if it had no power. The hand wants to flex at fingers. "It's hard to open fingers. Can't tell where fingers are in putting on my gloves." At times there has been twitching of subjective character in the left forearm. For twenty years albumin has been present in urine. Has had sick headaches all her life. Blood pressure rather high.

Examination shows woman older than her years. Blood pressure 185/100. Later it was found as low as 150, but usually between 170 and 190. Arcus senilis present. Pupils equal and slightly irregular. React promptly to light and in accommodation. Optic disks normal. Left retina shows some dark areas on each side of disks. (Old hemorrhage?) No other cranial nerve disorder. Power in left arm is a little weaker than in right—

especially flexion at elbow and in abduction of all fingers. No atrophy. Sensory tests. Touch equal on both sides. Astereognosis left hand and some loss sense of position. Reflexes of arm equal and 2 plus. Knee jerk equal and 4 plus. Achilles equal and 3 plus. No Gordon Oppenheim Chaddock or Clonus. Babinski test normal right and on left stimulus produces rarely a plantar flexion but usually no movement of any kind.

At her second visit she complained of numbness of both lips on the left side only. Finger nose test very poorly executed with left. Is clumsy in attempts to put on coat. Putting gloves on left hand fingers get in wrong holes without her knowing it.

Since then up to present there has been no change of consequence. At times she has thought she could use hand better—on the whole it is unchanged. Occasionally the lip numbness and tingling has been troublesome—again it would be less noticeable. At times she has felt it in left side of tongue. The optic disks remain normal. Some headache, no vomiting. During September and on October 24 had uncontrollable jerking of left hand and forearm. At the last examination, February 21, 1928, the left arm reflexes were perhaps more active than the right. All other findings as above. Blood Wassermann, December 24, 1926, was negative.

Here there are almost the same symptoms and signs as in Case 1, and practically the same localization as determined by these signs. Is this a tumor also? Possibly, but the patient has had a nephritis for years, blood pressure moderately high, no evidence of optic disk changes. No persistent headache, and finally in more than a year of observation no extension is noted, makes me believe we have a vascular affair. It is possible a cyst may have formed in this area as not infrequently happens.

Case 3. Male, 52. Plumber. Examination September 8, 1927. Referred by Dr. J. H. Brown. Complained of headaches and loss of memory. He stated he never had headaches until about six weeks previously. There was no vomiting but nausea was present. Pain was throbbing in type—located in temples, was constant, but varied in degree and worse at night. Since headaches began vision in right eye is less. The left is normal. Feels as "nervous as a cat," i. e., trembly. Stagers as if drunk at times. This has been of longer duration than the headaches. Three or four months ago fainted; was unconscious for some time—perhaps 15 minutes. Was told he jerked. Frothed at mouth. Tongue was sore after. A month later he staggered but didn't fall. Eyes became "glassy." Had headache both times for a week. The last was six weeks ago and has persisted. Intermittently paresthesia of right arm, leg and tongue has annoyed him. Makes more urine than formerly. Is up twice a night and occasionally dribbles.

Admits infection with gonorrhea and denies syphilis. Formerly drank considerably. None since he had these seizures. Pupils small and irregular. React to light and accommodation. No nystagmus and no strabismus. Left optic disk appeared normal. Right was somewhat hazy. The outline could be made out. The left field was normal but right temporal field was gone. Vision was 20/20 with both eyes though he missed many of the letters in each line. Tremor of lips in effort and of right hand in finger nose test. He was unable to walk a line with eyes open, but in ordinary walking gait seemed normal. Turning quickly to right staggered to right, but turning to left staggered less and in forward direction. Reflexes showed no abnormalities nor did sen-

sory tests. Memory very poor and calculation almost nil. He was correct in some few general matters.

September 16, he staggered more and to the right. There was tendency to drag right foot and marked incoordination of right hand. Tremor both hands—right worse. Fields same, but both disks hazy. Lumbar puncture September 21 and 8 c. c. of clear fluid removed. Pressure 14 m. m. Hg. at beginning and 8 m. m. after removal. Laboratory reported 9 cells. Negative Wassermann and normal colloidal gold test. His gait became worse and there was more impairment of power of right arm and leg. September 24 the field of vision of left eye also showed defects constituting a right homonymous hemianopsia.

Dr. Allen reported lateral x-ray of head. "There are a number of areas of rarefaction scattered throughout the frontal bones, with a small area of increased density which appears to be in the left frontal area. The sella is considerably flattened. The anterior clinoid process somewhat deformed."

Dr. Dennis made vestibular tests and reported: "The striking thing about his examination is that in spite of the fact that the entire examination is carried out at one sitting, he exhibits no evidence of reactive phenomenon such as pallor, nausea, sweating, etc. Another thing, he had no sensation of vertigo after douching his ears. Notwithstanding this, he fell when he attempted to stand, shortly after his right ear was douched.

"These two things taken in connection with spontaneous past pointing to the right with the right hand, point strongly to a posterior fossa lesion.

"On the other hand, after douching his right ear and then putting his head back which stimulates the right horizontal canal, there was a distinct tendency for his eye to be drawn to the right, although the quick component of nystagmus was not abolished. The Romberg also was distinctly negative. These two things rather point to a supratentorial lesion. Another thing which may have some bearing is that the action of his right arm in pointing was decidedly poor. The movement was carried out with apparent difficulty.

"In attempting to evaluate the weight of these contradictory findings, I have come to the conclusion that the vestibular tests indicate a supratentorial lesion near the center but probably more on the left side than the right."

In this case there was no doubt of an organic lesion located in left cerebral hemisphere in all probability. A number of ophthalmological examinations indicated some optic nerve involvement. Field examination (9-8-27) at first loss of vision on temporal side of right eye only. After September 24th the defect was also present in nasal field of the left eye. By this time his gait was worse, with a slight dragging of the right foot. This surely indicated extension of the lesion. Headache was continuous but vomiting not present. Some weeks later after returning from a vacation his employer informed me that the patient was said to have had an injury. The official claim stated he fell from a scaffold June 21. Laid off a day or two. Worked again until August 2. A convulsion on that day put an end to all work. Probably his memory defect was the cause of lapse in this history. Even then the symptoms and progress appeared to support the idea of an expanding lesion.

At Mayo clinic an exploration is said to have shown a clot. Indirectly he is reported far from well at present time.

Case 4. A young girl diagnosed by another as encephalitis. Female, 16. Examined December 1, 1923. Two years before in 1921 patient had loss of hearing in right ear with tinnitus beginning apparently after loss of hearing. Relatives stated there was never any ear discharge and that deafness was gradual in development. In July, 1922, headache occurred with vomiting said not to be projectile. Headache about eyes which seemed to pass through head to occiput. Two years ago there was diplopia corrected by use of glasses. For previous seven months pain had been present in right leg with spasm. Rubbing would make it jerk. Pain was constant and has taken large doses of Empirin to relieve it. No dizziness but for several months past patient staggered a good deal. During the same time some difficulty in swallowing, but no definite choking upon taking food. For two or three weeks past vision has diminished and control of back was lost so she could not sit up alone.

During previous summer (1923) there was momentary loss of vision. Another statement said spells began in December, 1922, and once was blind for six weeks. The mother thinks hearing began to fail five years ago after influenza and that, in 1920, after having smallpox, hearing was definitely weaker in right ear with tinnitus. Attended school until two years ago. She could not hear teachers; this hurt her feelings and made her nervous, hence was taken out of school. In November, 1920, was thrown from a horse and knocked unconscious and breathless. Got up, walked a quarter of a mile home and went to school the same day. Following this she cried easily. This has continued with more peevishness than formerly shown. February, 1923, bronchopneumonia. Treated by chiropractor. July, 1922, severe headaches with vomiting occurred after daily treatments, but since has had little of either.

Examination: Fairly well nourished young girl. Both pupils very large, right slightly larger than left. React to light. Double choked disk. Marked nystagmus of rotary type on looking to left. Winks more on right than left. No vision in right eye. Counts fingers at 18 inches with left. Definite right facial paresis involving upper branch moderately. Right cornea absolutely anesthetic and the motor branch of 5th nerve also involved. Tongue protruded in midline with slow tremor. Deaf in right ear. Taste apparently gone in both sides of anterior half tongue, but it seemed doubtful if patient understood what was wanted. Some stiffness of neck on forward movement of head. Incoordination of both hands. Reflexes more active on left than right, but no Babinski and other tests of the kind. Left upper abdominal

weaker than right and lower not obtained. Extremely unsteady in walk. Lifts right foot very high and somewhat spastic in type. Feet wide apart.

Dr. Dennis found from caloric tests no reaction from any canal of right ear, none from left vertical canal. Spontaneous nystagmus upward and crossed past pointing.

Operation December 3 by Dr. McKinnie who palpated a tumor. Patient died same afternoon. Autopsy revealed a tumor in right cerebellopontile angle involving acoustic nerve which Dr. Ryder diagnosed as neurofibroma containing numerous small cysts of softening.

Here there was a typical history of angle tumor beginning with tinnitus, deafness, gradual development of facial and 5th nerve paralysis, headache, vomiting, choked disks, etc. An excellent colleague considered it encephalitis possibly misled by the diplopia and facial weakness. But those of us who saw the cases, independently made a diagnosis of angle tumor confirmed by autopsy.

Case 5. Female. Age 22. Seen August 17, 1927. Referred by Dr. Arnold. Complaint, headaches; very severe, not constant. Excessive nausea with vomiting. Had headaches as child. Last April became more severe and frequent. Would have severe pain in left upper abdomen followed by headache, intense nausea and vomiting. Blood pressure 200/170.

In June became worse again and examined by Dr. Marburg who found double choked disk. Albumin in large amount found in urine. At my examination absolutely no focal signs could be made out. Both disks choked. Blood pressure 245/146 and next day 225/146. Frequent examination developed no focal signs though retinae showed hemorrhages. In December vision was gone and right face was weaker. Left eye turned outward but not persistently. Pupils became large and unequal. Blood pressure remained high and albumin continued in varying amounts. Wassermann negative.

The presence of tumor could not be absolutely excluded. The literature at my command indicated choked disks did occur in nephritis and high blood pressure—but also stated differentiation was extremely difficult. Localizing signs would have confirmed the tumor diagnosis. It is said that choked disk in these cases can be differentiated from that of tumor by the presence of hemorrhages away from the disks. Exploration was opposed because of lack of definite tumor signs and the underlying conditions nephritis and high blood pressure. Toward the end marked general edema developed. At autopsy no tumor was found.

VITAL STATISTICS*

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COLORADO SPRINGS

This paper does not deserve classification as a scientific production, but I trust you will find it contains enough good common sense to make it worth your while listening to it.

During the years I have been a member of this society, I cannot recall mention hav-

ing been made of Vital Statistics, as that subject refers either to births or deaths and yet Vital Statistics deal with matters in which we as professional men are most deeply interested. When I was requested to participate in this program, it occurred to me a brief consideration of the subject might prove interesting and beneficial. Such consideration is most timely in Colorado at this

*Read before the El Paso County Medical Society at its May, 1928, meeting.

time, because on the first of June the census bureau will begin a survey of the state to determine whether the birth registration is of sufficient completeness to warrant the admission of Colorado into the registration area of the United States. Colorado has, since 1906, been within the registration area for deaths.

It has proven much more easy to secure complete death than complete birth registration, since the undertaker who buries a body, or the sexton, who permits a body to be permit, throws himself liable to the penal-buried without first having secured a burial ties prescribed by the statute. A burial permit can only be secured by filing a certificate of death. In birth registration, the whole responsibility rests with the doctor in attendance at the birth. In the past there have been wilful evasions upon the part of some doctors, but, upon the whole, doctors are now co-operating. One great obstacle is that so many births occur with no doctor in attendance, either with a mid-wife, or in some cases with no one to officiate. Responsibility for filing the birth certificate is placed first upon the physician or mid-wife, if there be one in attendance. If none in attendance, the responsibility devolves upon the father or mother of the child, householder or owner of the premises, manager or supervisor of public or private institution, who shall notify the local registrar of the birth having occurred, and the local registrar shall then secure the information and signature to make a certificate of birth. Penalties are fixed for failure upon the part of the physician and in some instances these are imposed; however, the most effective provision is that of some states which make a fee for obstetrical practice uncollectable when a certificate of birth has not been filed within the ten days as required, the reason being that the doctor has not completed his duties to the family until he has properly recorded the birth.

As physicians we can do much to make the birth registration in Colorado approach completeness and secure the admission of the state to the registration area, thus making Colorado statistics available for comparison

with those from other states, the United States and all registration countries.

The system of registration as it exists today has been one of evolution and education, evolution from the crude recording of baptismal ceremonies in the old churches and the chronicling of that other great event which comes to all, to the present complete record of the birth and death of an individual and the preservation of this record for all time for the use of descendants. Gradually, too, there came to be compiled statistics of people. The scope of these statistics gradually broadened until vital statistics has now come to be known as the bookkeeping of the human race.

As indicated above, the earliest vital statistics are found in the old churches, particularly the Roman Catholic churches of Europe, where there was made and preserved a record of the sacrament of baptism for every child born to the devotees of that faith. Also there was made a record of all burials, thus establishing a record of death—this custom spread over all Europe among the religious sects and a fairly complete registration was secured for all church members. However, Europe has been subject to wars of invasion during practically all of her history and church edifices have been the particular goal of many invaders. Valuables such as the golden altar vessels have been carried away as loot and in the spirit of revenge for opposition, many of the edifices were destroyed and with them the records of baptisms and burials. This, in all probability, led to the taking over of registration by the states with a resultant preservation of the records.

During the early years in this country the early inhabitants were too busily engaged in subduing the forests and Indians and in wresting a livelihood from the soil, to think of records, however an attempt was made with the old family Bible as the place of record. This was, of course, very unsatisfactory and inefficient because Bibles were burned in destroyed homes, while many fell into the hands of posterity which was not interested in records. About the next step in advance was for the recording of births

by the tax assessor. Each year as he made his rounds for the property listing, he asked, if he did not forget it, whether there had been any births or deaths in the family. Returns of such births and deaths were made to a court of record.

Quite naturally in this country, the further improvement in registration had its beginning in the New England states, but strange to say, recognition was not made by the federal government until 1880, when Massachusetts, New Jersey and the District of Columbia were made to comprise the registration area for deaths. Not for thirty-five years subsequent to this was there established a birth area, although there had been some registration of births prior to 1915 and some registration of deaths prior to 1880. The extension of the death registration area continued quite rapidly and steadily until now the area includes all states except South Dakota, Nevada, New Mexico, Oklahoma and Texas, while in New Mexico, Oklahoma and Texas laws have been enacted and registration is being carried on but not with assurance of a 90 per cent completeness as required before the states can be admitted to the area.

Since the establishment of the birth registration area in 1915 comprising the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, Michigan, Minnesota, and the District of Columbia, it has expanded to include all states excepting South Dakota, Nevada, Colorado, New Mexico, Oklahoma, Texas and South Carolina, while in all of these states excepting South Dakota and Nevada, laws are operating and it only remains to be demonstrated that the registration is 90 per cent perfect for them to be admitted to the registration area. The laws of all the states excepting South Dakota and Nevada conform in all requirements to the model law which was drafted and has been urged by the Division of Vital Statistics in the Department of Commerce and the Bureau of Census.

The goal which federal registration officials have set for themselves is, "Every State in the Registration Area Before 1930."

The objects of registration are many. I shall not attempt to go into all of them. To do so would stretch this paper beyond the lengths of decency and interest, and having been the daddy of the 10 o'clock dead line, I do not want to be the first to transgress.

Considering first the registration of births; a permanent record is made establishing all the rights to property and citizenship. The right of the child to inheritance from the father and mother is established—school age, rights under the child labor laws, the so-called age of consent in females—the right to vote—liability to the juvenile or other courts of law—eligibility for military duty—the right to re-enter this country, once having left it; and, in fact, all phases of citizenship and property rights are covered by birth registration.

From the purely statistical point of view, the birth rate for the total population is determined; this, compared with the death rate, gives some interesting and valuable information. The infant mortality rate cannot be determined without complete registrations first of births and then of deaths. Property rights and those of citizenship depend to almost an equal extent upon the registration of deaths, for manifestly a child has no standing in law so long as his immediate ancestors live. After the death of the parents without a record of their deaths, it might be a difficult problem to establish the fact that the father or mother or both was entitled to citizenship. Some have wondered why maiden names of mothers were required on both birth and death certificates. It is now apparent in tracing rights to property through the maternal ancestor. Life insurance companies require certified copies of certificates of death, and in the event of the death of a beneficiary prior to the death of the insured, and where no other beneficiary has been named, certified copies of certificates of birth before settlement for a policy can be made. Nothing serves so well as a check upon infectious and contagious diseases as the registration of deaths; in fact, without complete registration of births and deaths, preventive medicine and prac-

tically all activities in public health work would be at a stand still.

From the certificates on file, statistics are compiled by the various state registration officials and by the Census Bureau in Washington. These compilations are of course technical and routine and are made with great care to see that no errors creep in, the compilation for one item of information being checked against all other compilations and all must balance.

Birth statistics are compiled for, the place of birth; sex of the child, whether single or pleural birth, legitimacy, date of birth, age of the father, his color, whether native or foreign born, his occupation. Color and age of the mother, whether native or foreign born, her occupation, number of the child born to the mother and the number now living. There is also a compilation for native born fathers and foreign born mothers and for foreign born fathers and native born mothers.

Death certificates are compiled for place of death, sex, color, age, place of birth, birth place of father and mother, occupation, date of death, cause of death.

Thus it will be seen that much valuable information is to be obtained by the compilation of birth and death certificates which some one has aptly termed the bookkeeping of the human race, but there is a field for much more information of even greater value when the federal and state governments require the reporting of morbidity as well as mortality cases. Such a requirement would make available information as to the number of deaths from a given disease per thousand cases rather than the number per thousand or per hundred thousand population, and would greatly clarify the prevalence of a given disease in any locality, year or season of the year. At present there are requirements for the reporting of all communicable diseases, but like many other requirements it is enforced very laxly and as a result the information obtained is not of much value. Complete reporting of all communicable diseases would provide a store of valuable information, and it is impossible to estimate the value which would be obtained

from the report of all illnesses of whatever nature.

The compilation of statistics upon the present basis of population necessitates the estimation of population in each of the political subdivisions of the state. Census is taken but once in ten years, so for only one year out of ten can the census return be used in calculating birth and death rates. This estimate is based on the average increase in population made during the last census period. In many instances this estimate is far from right, as in the case of booms and slumps in towns and cities. This necessitates a re-estimation of population after the next census report is available and a readjustment of all birth and death rates. So that it requires the lapse of from one to ten years for the most nearly correct rates to be made available. When the time comes that morbidity reports are required as rigidly as mortality reports are now required, the statistician will have a basis for his computation which will exceed in accuracy his present basis.

Another improvement in the compilation of birth statistics would be the basing of all rates upon the number of females of child bearing age, rather than upon the total population.

We now come to the subject which has caused more discord in the medical profession than any one thing connected with birth and death registration, and for that reason I approach it with some fear and trembling: viz., the causes and joint causes of death—which is the primary and which is the secondary cause—should the cause of shortest duration be given as the primary and the one of longest duration be given as the secondary or contributing cause. Is it necessary for a contributory cause to be given on the certificate, the question of nomenclature, whose duty it is to sign the certificate? These and many other questions have arisen and caused no little discussion and some dissension.

The truth of the matter is that it makes little or no difference which one of two joint causes is given first—the chief thing is to get the information on the certificate and leave

the rest to the editor whose duty it is to make the classification, thereby assigning the cause of death. Manifestly for statistical purposes, no death can be assigned to two causes and the classification of joint causes is done in accord with strict and hard fixed rules from which there is no deviation. Certain diseases take precedent over certain other diseases when they appear as joint causes of death. These precedents are fixed by international agreement among statisticians and are adhered to by all registration countries in order that the statistics from all may be of value for comparative purposes.

Some doctors have taken exceptions to these arbitrary rulings, but manifestly statistics from the United States would be of no value when compared with those of Great Britain or France were it not that all countries follow the same rules of classification. The same statistical chaos would obtain between the states of the United States and the result would be a conglomeration of figures which mean nothing.

This also has led to the adoption of a nomenclature to be used by all registration countries so that the terms will have the same meaning. Each physician should familiarize himself with this nomenclature and make use of its terminology in assigning his cause or causes of death. However, in the absence of the proper term to use in describing a certain disease or condition, a plain statement of the condition, one which cannot be misinterpreted is acceptable.

As an illustration, a certain state bureau received a certificate for a man aged 94 years on which the attending physician wrote as a cause of death: "No disease. Just petered out." Not found in the nomenclature but quite expressive and a perfectly acceptable cause of death for a man of that age.

In all assignment of causes of death upon death certificates the physician should conform as near as possible to the international nomenclature. There are other nomenclatures which doubtlessly are just as good and some which may be better, but the international is equal to all emergencies and is

the one which is used by all registration countries in the compilation of statistics. It stands to reason that statistics will be of more value for comparative purposes if it is adhered to.

In assigning a cause of death with contributory cause, if there be one, the physician must be sure to leave no disconnected links and leave nothing to be inferred, for while registration officials of necessity are arbitrary, they are not allowed to assume. I can illustrate best what I mean by leaving no disconnected links in assigning a cause or causes by giving an illustration. A man dies from hemorrhage, caused by a gunshot wound. It is not necessary to recite that he died from hemorrhage at all. Nor is it enough to say that he died from a gunshot wound. It must be explicitly stated whether it was accidental, homicidal, or suicidal. A person afflicted with carcinoma lies in bed so long that a hypostatic pneumonia develops. It is not necessary to mention the hypostatic pneumonia, nor is it sufficient to give carcinoma as the cause. The organ or part first affected by carcinoma must be named.

Such terms as cancer, pneumonia (undefined) old age in persons under 70 years of age. Heart failure, dropsy, inanition and strange to say "still-born" are returns which are the bane of every registrars' and statisticians' life. I mentioned still-born, and it would surprise you to know how many doctors do not know what constitutes a still-born child. A nurse in a local hospital recently asked how long a child could live and still be still-born. She then informed me a babe had been born that morning and had lived one hour and still the doctor insisted it was still-born. If a child's heart beats once after birth, or if it makes an attempt at breathing, it is not still-born.

Symptoms should never be reported upon a certificate. Before writing a return, the doctor should stop and think whether he is about to name a disease and whether he is expressing himself in an accepted term in the international nomenclature or whether he is about to write the name of a prominent symptom.

Your ideas as to which disease in a joint cause of death should be given precedence, do not matter. As stated the rules are fixed by agreement so that statistics may be of value for comparison. As an example in a certificate of death with a return of carcinoma of the stomach appearing as either the primary or secondary cause, the duration having nothing to do with the matter, the carcinoma of the stomach will take precedent over any or all joint causes excepting typhoid fever, Asiatic cholera, plague, yellow fever, leprosy, glanders, anthrax, rabies, cancer of the female genital organs, cancer of the breast, all suicides, homicides and other violent deaths. With this explanation you will see why I say do not quibble over which should be the primary and which the contributory cause. Just put down the information and trust to the editor to wrestle with the proposition of classification.

NEWS NOTES

The sixth annual summer graduate course in ophthalmology and oto-laryngology embraced two weeks, closing July 28th. The course was offered in Denver by the physicians of these specialties. They were ably assisted by Dr. Walter Parker of Detroit, Mich.; Dr. Sanford R. Gifford of Omaha, Neb.; Dr. Samuel Iglauer of Cincinnati, Ohio; Dr. Perry Goldsmith of Toronto, Canada; Dr. Arthur W. Proetz of St. Louis, Mo.; and Dr. H. J. Prentiss of Iowa City, Iowa. The registration for these courses numbered more than sixty specialists from different parts of the country.

A graduate course in neuropsychiatry has just completed a very successful course of a month's lectures and demonstrations at the University of Colorado under the direction of Dr. Franklin Ebaugh.

Dr. H. L. Hickey has recently returned from Boston where he spent several months in graduate work at the Harvard Medical School.

Dr. Frank B. Stephenson has been out of the city for several days because of serious illness of his mother. He returned to Denver the latter part of July.

Dr. T. D. Cunningham has returned from a recent trip to Dartmouth where he attended commencement exercises and class reunion.

Dr. J. W. Amesse attended the class reunion at Ann Arbor early in July.

Dr. T. E. Beyer has recently spent a week in Milwaukee because of the illness of his father.

Dr. E. K. Shelton of Antonito is spending the summer in Colorado Springs. He is assisting Dr. Engelbach of St. Louis in a review of his clinical material.

WOMAN'S AUXILIARY

The annual meeting of the State Auxiliary will be held in September. The complete program will be announced in the September number of this Journal.

San Juan Auxiliary met on Saturday evening, July 14th at Mancos. Honor guests were Mrs. Curfman and Miss Simms, superintendent of the Rio Grande Hospital of Salida.

The meeting was preceded by a dinner for the doctors, wives and invited guests.

News items from Hygeia are frequently printed in the local newspapers, this being sponsored by the San Juan unit.

The Medical Society reports an increase in attendance at their meetings since the organization of the Auxiliary.

Scientific Exhibits

(Continued from page 259)

5. Recent Advances in Experimental Tuberculosis. H. J. Corper and Nao Uyei. Research Department. National Jewish Hospital, Denver.

6. Pathological Exhibit. Children's Hospital, Denver.

7. Exhibit of the Denver Tuberculosis Society.

8. New Laboratory Procedures. P. Hillkowitz, Denver.

9. Kidney Lesions. Gross Pathology. H. T. Low, Pueblo.

10. Tuberculosis of the Eye. W. C. Finnoff, Denver.

11. Tuberculosis in Childhood. Colorado Tuberculosis Association.

12. Parasitic Amoeba of Man. Demonstrations. C. W. Maynard, Pueblo.

13. Leprosy. Natural Color Photographs. O. E. Denny, U. S. P. H. S., Carville, La.

14. Models of Tuberculosis of the Larynx. Glen Lake Sanatorium, Minnesota.

Historical Exhibit

Martyrs of Medicine. University of Colorado School of Medicine.

Harvey. George Boyd, Colorado Springs.

Appendicitis. George Curfman, Salida.

Progress in Medical Transport. E. D. Downing, Woodmen.

Physician's Hobbies

Physicians' Art Club, New York. Sculpture, etchings, paintings.

Paleopathology. F. B. Young, Gering, Neb.

Amateur Photography. Supervision of Wm. Crisp, Denver.

Medical History. Gerald B. Webb, Colorado Springs.

Tuberculosis Seals. J. J. Waring, Denver.

Medical Books. Leroy Crummer, Omaha, Neb.

Reprints of Colorado Members for 1927

Under the supervision of F. Heller, Pueblo.

In Memoriam

Under the supervision of the Committee on Necrology. W. A. Palmer.

Radiological Exhibit

Under the supervision of W. W. Wasson, Denver.

Commercial Exhibits

Denver Fire Clay Company. Represented by Carl Johnson.

Geo. Berbert & Sons. Physicians' and Surgeons' Supplies.

Victor X-Ray Corporation. Represented by Wm. H. Beard.

Occupational Therapy Department. Woodmen Sanatorium.

Muckle X-Ray Company. Paul V. Muckle.

J. Durbin Surgical Supply Company. M. A. Downie, Mgr.

The Kelley-Koett Mfg. Co., Inc. E. Denlinger, Branch Mgr.

The Engeln Electric Company. I. M. Wagner, Branch Mgr.

Johnson and Johnson. New Brunswick. N. J. E. Geiger, Representative.

Becton, Dickinson & Co. Rutherford, N. J. E. Hickish, Representative.

McIntosh Electrical Corporation, Chicago. Denver office, 1115 Logan Street. Charles Arnois, District Mgr.

Hygeia. American Medical Association.

NEW CONSTITUTION AND BY-LAWS

A 1928 printing of the Constitution and By-Laws of the Colorado State Medical Society, as revised to date, has been completed. Distribution to the secretaries of the various constituent societies has been made in sufficient quantities to probably meet the demand from members. Additional copies may be obtained from the secretary upon request.

This carries out the directions of the House of Delegates.

F. B. STEPHENSON, Secretary.

BOOK REVIEWS

Pathological Physiology of Internal Diseases. Functional Pathology by Albion Walter Hewlett, M.D., B.S., Formerly Professor of Medicine, Stanford Medical School, Professor of Internal Medicine and Director of Clinical Laboratory, University of Michigan. Revised in Memoriam by His Colleagues, Thomas Addis, M.B., Ch.B., M.D., George DeForest Barnett, A.B., A.M., M.D.; Walter Whitney Boardman, M.D.; Ernest Charles Dickson, A.B., M.B., M.D.; Henry George Mehrrens, B.S., M.D.; William Ophuls, M.D.; Jay Marion Read, B.S., M.S., M.D.; Howard Frank West, A.B., M.D.; Henry Alphonso Wyckoff, A.B., M.D. Under the Editorial Supervision of George DeForest Barnett. With One Hundred and Sixty-four Illustrations in Text. New York and London: D. Appleton and Company.

It would have been difficult for his associates at Stanford to have made a finer, more concrete tribute to the late Professor Hewlett than the in memoriam publication of this third edition of his book. Hewlett had outlined plans for a complete revision shortly before his tragic death, in 1925, from multiple malignant brain tumors. His colleagues have largely retained the original form and order of presentation, and have admirably carried forward the endeavor to cite for the practitioner the more significant of the recent salient findings in pathological physiology and biochemistry, and to present from a clinical viewpoint a

conservative estimate of current knowledge and opinion in the fields covered.

Excellent judgment has apparently been brought to bear upon the problem of weighing and analyzing the experimental and clinical evidence dealt with; certainly much and painstaking labor has gone into the task. Unlike many other good volumes for the usually busy practitioner, its field is not one already well covered by a number of other books. The comprehensiveness of the index is a joy to one who expects utility and looks for scientific consistency; also to one who has been constantly exasperated by the incomplete indexes of Howell's Text-book of Physiology and of some other widely used American physiology texts.

In the boiling down of so great a mass of material to a mere 720 pages of text, it is perhaps relatively inevitable that here and there an investigator should be mentioned without date and without the reference being given in the chapter-end bibliographies. That such omissions have proved tantalizing is evidence of the competency of the book to excite interest.

E. H. BRUNQUIST.

NEW BOOKS

The Collected Papers of the Mayo Clinic and the Mayo Foundation for 1927, Volume XIX. Edited by Mrs. M. H. Mellish and H. Burton Logie, M.D. Octave volume of 1330 pages with 412 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, \$13.00 net.

Gynecology. By William P. Graves, M.D., Professor of Gynecology at Harvard Medical School. Fourth Edition, Thoroughly Revised. Octavo volume of 1016 pages, with 562 illustrations, 128 in colors. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, \$10.50 net.

Hay Fever and Asthma. Their Cause, Prevention and Treatment. By Ray M. Balyeat, M.A., M.D., F.A.C.P. Instructor in Medicine and Lecturer on Allergic Diseases in the University of Oklahoma Medical School; Consulting Physician to St. Anthony's Hospital and to the State University Hospital; Member of the American Association for the Study of Allergy; Vice President, Oklahoma Academy of Science; Director of the Balyeat Hay-Fever and Asthma Clinic. Oklahoma City. Illustrated with 76 Engravings, including 2 in Colors. Second Edition, Revised and Enlarged. Philadelphia: F. A. Davis Company, Publishers.

Clinical Medicine. By Oscar W. Bethea, M.D., Ph.G., Professor of Therapeutics; Tulane Graduate School of Medicine; Professor of Clinical Therapeutics, Tulane School of Medicine, New Orleans, La. Octavo volume of 700 pages. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, 7.50 net.

Addresses on Surgical Subjects. By Sir Berkeley Moynihan, Bart., President of the Royal College of Surgeons of England. Octavo of 348 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, \$6.00 net.

The Surgical Clinics of North America (Issued serially, one number every other month). Volume 8, number 3. (Chicago Number—June, 1928). 219 pages with 49 illustrations. Per Clinic year (February, 1928, to December, 1928). Philadelphia and London: W. B. Saunders Company. Paper, \$12.00; cloth, \$16.00.

WYOMING MEDICINE

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EDITORIAL NOTES AND COMMENT

THE LAST CALL

The time is at hand when every physician in Idaho, Montana and Wyoming should decide, if he has not already done so, whether or not he is going to attend the first tri-state meeting of the medical societies of Idaho, Montana and Wyoming in the Yellowstone National Park, August 27, 28 and 29.

In making this decision some men will naturally consider certain factors and give more weight to questions, such as: distance to travel, expense, loss of time from their practice, road conditions, etc. Others will decide for the trip by considering the program presented, the beauties of such an outing, renewal of acquaintances and the making of new friendships, the outdoor life and the good they will derive from the association with the leaders of our profession, etc., etc.

Every doctor certainly is entitled to a vacation in which he is freed from the constant call of sick patients.

This is your chance! Nowhere in America is there a more wonderful place to spend a vacation and certainly this trip will be enjoyed all the more by reason of the presence of the good wives of the doctors and the gathering of a great number of the leading members of the medical profession and their wives. There has always been a large attendance of the doctors' wives at our state meetings and this meeting above all others ought to see them present in large numbers. We men owe them this trip, so plan to bring your wife along.

In regard to distance, suppose you do have to drive a long way, what of it? You will

have a chance to see other parts of your own state and when you return to your home you may be better contented than when you left. On the other hand you may see some place on this trip that appeals to you where you may wish to locate, if so, the trip will have its own reward.

You say you cannot afford to go. You cannot afford to stay at home. That's the truth. Come to the Yellowstone Park and see if that is not so.

You may have been there; what of it? Come again and you will find new location beauties you failed to see before, and certainly you will meet and listen to some of the greatest teachers in America.

Think of it! Twenty-five of the really outstanding American physicians and surgeons are coming to address us, to teach us without a cent's expense to us, that we may return to our homes as better doctors.

If we had to pay for such an array of talent our societies would be bankrupt for years. Yet the feast is spread and it's yours if you only come and get it.

How can you afford to stay away? You cannot, I cannot, none of us can. So we are going.

Now the cost. Just as much as you want to make it. And on the other hand you can cut the cost if you want to either by bringing your own camp outfit and enjoying the park camp or you can stop at the Yellowstone Park lodges or camps as they are sometimes called. Here you will find the large central dining room and central building surrounded by lodges of three types—log, rustic clapboard and bungalow tents—all well built and comfortable, heated with a wood burning stove for the cold nights, com-

fortable, clean beds, electric lights and the best of meals at very reasonable prices. Under the American plan the cost is \$4.50 per day per person at the lodges (for room and board). The writer and his family have enjoyed these camps and can recommend them.

On the other hand, the rates in the beautiful Canyon Hotel, which compares favorably with the large city hotels, are \$6.50 per person per day for meals and room without bath, and for a room with bath and meals, \$10.00 to \$11.00 per day per person.

Two persons in one room with bath, according to location, \$9.00 to \$10.00 per day per person. Four persons in two rooms, according to location, bath between \$8.50 to \$9.00 per day per person.

If you do not have a room in the hotel, the rates for meals are as follows: Breakfast, \$1.25; lunch, \$1.50; dinner, \$1.50.

At the camps or lodges all meals are served on the American plan at \$1.00 per meal, and they are very good meals.

Everything will not be perfect everywhere. The roads may be muddy part of the way; what of it? You are used to that. In the park they will be good. The program may not cover everything you desire, but we feel the program is one of the strongest ever offered in any western meeting, and if we had the hotel accommodations thousands

would attend. All it would need would be the advertising, but we cannot accommodate these great crowds. It's your meeting and it is up to you to attend and get the benefits. Let's you and I do all we can to show these great teachers our appreciation of their presence and sacrifice. Make them happy that they have come out to our country. Give them the glad hand and let's all enjoy each other in this, our first tri-state meeting. Other meetings in the years to come will certainly follow this one and in three or four-year intervals they will be repeated if you want them, and you surely will welcome them.

There is, however, this danger. Hotel and lodge accommodations are limited. Write today for your reservations. Tomorrow or next week it may be late. Don't start unless you have reservations as the space is limited unless you bring your own camping equipment along.

We surely would hate to see some poor beggar sleeping out under a big tree without a bed, so write at once for your reservations. If you don't do this it will be your own hard luck.

The best way to visit the park will be in your own car as no railroads enter or cross the park.

This is your meeting! Come and have the time of your life.

E. W.

SOME USES OF THE ELECTROCARDIOGRAPH*

W. G. RICHARDS, M.D.,
BILLINGS, MONTANA

In a machine age like the present it could scarcely be expected that medicine would escape the prevailing infection, and so we have a continual introduction of new instruments both for diagnosis and treatment. As is true of all machinery, these have not been an unmixed blessing, for there is always the danger that a reliance upon them may lead the physician to attempt to substitute them for that critical use of his own faculties which was the glory of the older diagnostician, but considered as merely supplemental to this, giving us information to be added

to the findings of an exhaustive and thorough physical examination, placing each detail in proper relationship to all the knowledge thus obtained, and avoiding the undue exaltation of any one factor, their advantages are impossible to gainsay.

I need make no apology, therefore, in introducing the subject of electrocardiography to your notice today. For long an instrument of the physiological laboratory and the large clinic, the simplification of the machine, with the consequent reduction in its cost until it is within the pecuniary range of the man of moderate means, has made it a practical method of diagnosis, and the ingenuity of the manufacturers in devising

*Read before the Midland Empire Medical Conference, Billings, Mont., March 27, 1928.

"portable" apparatus has brought the method directly to the bedside of the patient. Sometimes, after carrying even the lightest of them, one is tempted to a cynical smile at the appropriateness of the term "portable," but, even so, the fact remains that they **are** portable, though may be with some effort, even by one without pretense to a lineal descent from Hercules, while the satisfaction of having definitely elucidated some obscure point in cardiology is ample reward for the muscular effort involved.

Let me disclaim, however, both the intention and ability to give an exhaustive dissertation on electrocardiography. The object of this paper is simply to show that the method is now a practical one for the everyday practitioner of medicine like myself, that it is a method which will give valuable information obtainable in no other way, and that this information is of immense importance in the understanding of hearts which we are called upon to treat. For this reason I shall be brief, avoiding controversial matters, and adopting the simplest explanations possible.

A few words as to the rationale of the method. As with all muscles, when those of the heart contract electric currents are generated. These currents, being transmitted to the surface of the body, are picked up by electrodes applied to the limbs and conveyed to the machine, where they deflect a fine metallic coated quartz string suspended between the poles of an electromagnet. The shadow of this string, as it moves in a field of light, is cast upon a moving film or bromide paper, and the pho-

tograph thus obtained is the electrocardiographic tracing. As minute currents of electromoving film or bromide paper, and the photricity are also generated by the skin and sweat glands, which interfere with the heart currents, these have to be "compensated" by the introduction of a neutralising current, and, so that all electrocardiograms may be compared with one another, the tension of the string has to be regulated so that one millivolt of current will exactly deflect it one centimeter.

A complete electrocardiogram should consist of three tracings, the "derivations" or "leads" of technical terminology. Lead I is obtained from the electrodes connected with the left arm and the right arm, lead II from the right arm and left leg, and lead III from the left leg and left arm. The most important of these is lead II, the least important, lead III, this last sometimes being a bizarre collection of ups and downs from which even the expert refuses to draw conclusions. However, all three are necessary, as relationships between them are important in some conditions, as in relative enlargement of right and left ventricles.

Each electrocardiogram is divided into a number of small squares produced by the crossing of horizontal and vertical lines, facilitating the measurement of the heights of the string excursions and also the time relations. The horizontal lines are printed upon the film or paper by lines ruled on the camera face, and the vertical ones by the

*Reproduced by permission from "Heart Records," by S. Calvin Smith, Philadelphia, F. A. Davis Co., 1923.

CONDUCTION SYSTEM.

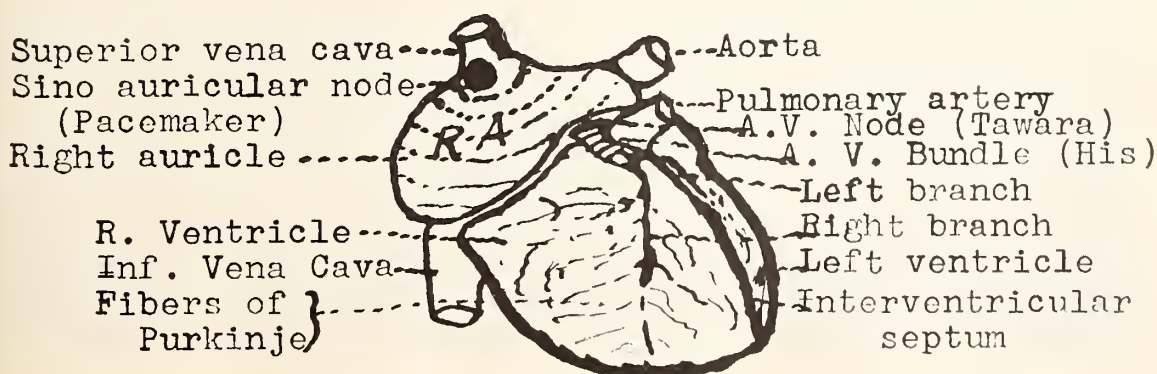


Fig. 1

spokes of a wheel revolving in front of the camera. Every fifth line is made a little heavier than the others, which makes the counting of them easier. The horizontal ones divide the space into millimeters, while the spaces between the vertical ones represent twenty-fifths of a second.

As the form of the electrocardiogram largely depends on the integrity of the conduction system of the heart, representing the conduction of the impulse as well as the actual contractions, let me refresh your memory by a description of the conduction system.

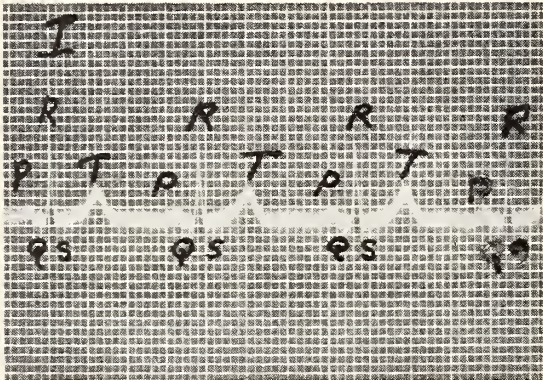


Fig. 2

Under normal conditions the stimulus which is responsible for the contraction of the heart arises in a mass of neuromuscular tissue situated at the mouth of the superior vena cava, the "sino-auricular node." This is the "pacemaker" of the heart, which governs the contractions of every normally acting heart. From here the impulse passes in a series of regular waves across the auricular muscles to a similar bundle of specialized tissue between the auricles and ventricles, the "auriculo-ventricular node," and

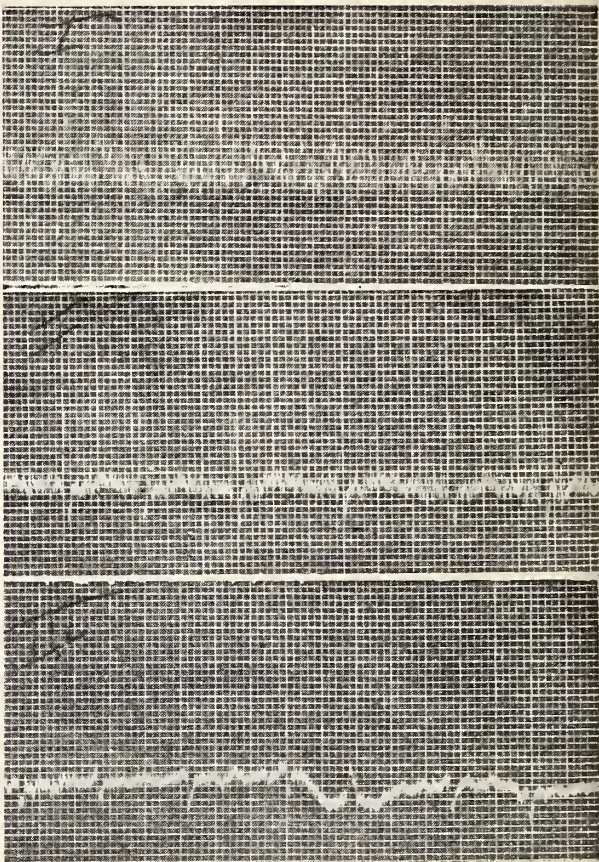


Fig. 4

from this node along the bundle of His and its right and left branches to the ventricular muscles through the fibers of Purkinje. The function of stimulus formation, however, is not confined exclusively to the sino-auricular node, for practically any part of the heart can initiate impulses "on its own" under appropriate conditions, and it is to this displacement of the function of stimulus formation from the normal pacemaker to some other part that we owe the various irregular rhythms.

Fig. 2 represents the normal electrocardiogram. It is composed of a regularly recur-

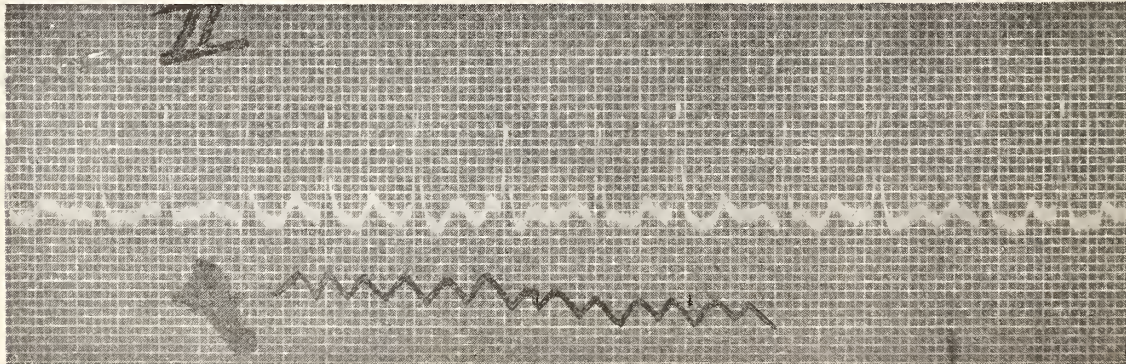


Fig. 3

ring series of upward peaks, which have been arbitrarily denominated P, R, T, while the points at the beginning and end of the R peak, and which often shoot considerably below the base line, have been similarly entitled Q, S, giving a complete series P, Q, R, S, T. The activity of the heart commences at P, which represents the initiation of the stimulus in the sinus node and the contraction of the auricular muscle as the stimulus spreads through it. The space from P to Q, the "P-Q interval," may be considered as representing its passage through the auriculo-ventricular node and the bundle of His, and Q, R, S, T its passage through the bundle branches and arborizations and the ventricular contraction, while the level line from the termination of T to P indicates the diastole of the heart.

The time relations of these peaks is important. The interval from the beginning of P to the beginning of the R wave at Q should not exceed two-tenths of a second, it generally being somewhat less, while the space at the foot of the R wave should not exceed one-tenth of a second.

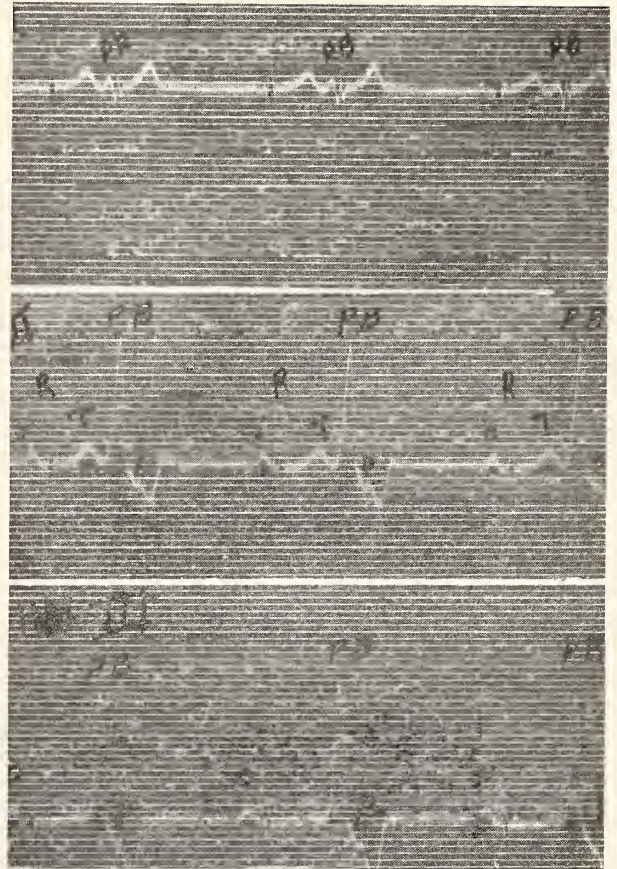


Fig. 6

Compare Fig. 2 with Fig. 3, which is from a case of auricular flutter. In this, as you know, the stimulus does not arise in the sinus node, but in a ring of tissue at the mouths of the great vessels, around which the successive stimuli travel in rapid succession, something like a dog trying to catch his tail. If the dog should succeed in catching it, that is, if one stimulus should arrive immediately behind the preceding one, it would reach the muscles during their refractory period, and the abnormal rhythm would be broken up. As it is, they produce rhythmical auricular contractions of about 300 per minute, while, as the ventricles can rarely keep up with this rapid rate, these only respond to every other beat or less. Consequently we have an abnormal electrocardiogram, where, instead of the regularly recurring P, Q, R, S, T, we find a distinct series of the large R waves, but the rest of the tracing is made up of a series of peaks which produce an almost regular zig zag line, the tops of some of these peaks being lost in the R wave. These peaks represent the contractions of the auricles, and are at the rate of

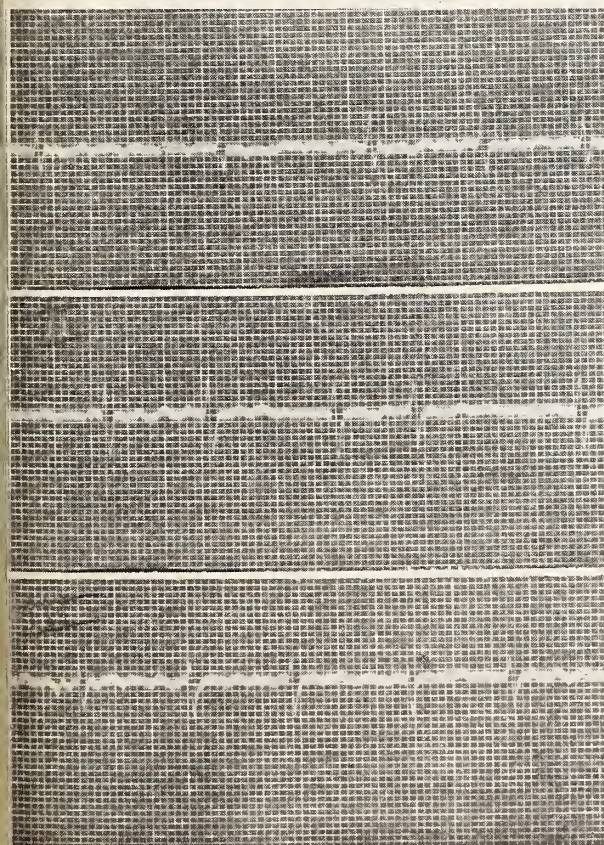


Fig. 5

about 300 per minute, the ventricles responding generally to every other one. This condition can only certainly be recognized by the electrocardiograph, for clinically one would only appreciate the ventricular beats.

Figs. 4 and 5 represent a related condition, auricular fibrillation. Here the stimulus arises in much the same way, but travels irregularly over the auricles, producing, instead of regular rhythmic contractions, irregular fibrillary movements of the auricular muscle fibers, without definite contractions of the auricles as a whole, while the ventricles, bewildered with a perfect bombardment of stimuli, respond only as they are able, producing the "perpetually irregular pulse" of older authors. The fibrillary movements may be well seen between the

irregularly spaced R peaks, Fig. 4 being so-called "coarse" auricular fibrillation, and Fig. 5 "fine."

Fig. 6 shows regularly recurring premature contractions arising in the ventricle. It is a good illustration of "coupled beats." It also illustrates the result of carelessness in operating the machine, for the time marker was not started, and it is consequently impossible to time the events, though it makes a good record for demonstration, as there are no vertical lines to obscure the peaks. The smaller complexes represent regular beats. There is a perfect sequence of P, R, T. Immediately following T, however, is a large peak, marked P B (premature beat), representing a premature systole of the ventricle. It must be of ventricular origin, be-

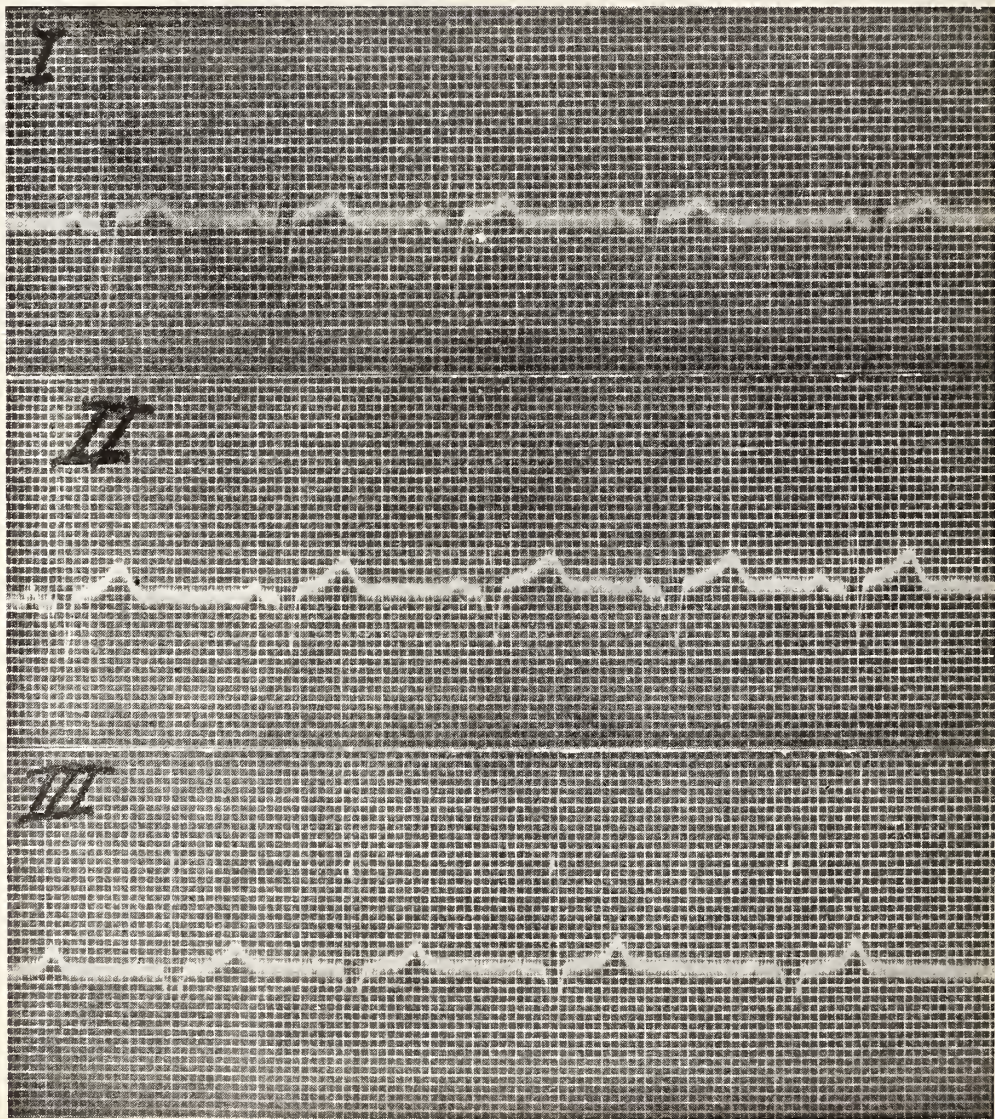


Fig. 7

cause there is no preceding P (auricular) wave. There is a notch on the downward limb of each T premature beat, marked P, which is produced by the regular auricular impulse coming through. It is not followed, however, by a ventricular contraction because it reaches the ventricles during their "refractory" period, though, as the next impulse comes through when they have recovered, we then have again a normal sequence. For the time being there are in this heart two distinct sites of stimulus formation, one the normal sino-auricular node, the other in the ventricles, each working on its own account. In this case it was a temporary condition, for the next day the rhythm was normal. Sometimes, when these coupled beats do not occur as regularly as

in this case, they are difficult to distinguish from auricular fibrillation, and here the electrocardiograph again comes to our aid, as it did in a recent case where they had been produced by the injudicious use of that most useful but much abused drug digitalis, and in which its discontinuance caused a return to normal.

Figs. 7 and 8 indicate enlargement of the right and left ventricles respectively. Note that the principal spike in Fig. 7 is directed downward in Lead I and upward in Lead III. This is pretty generally accepted as showing relative enlargement of the right ventricle. In Fig. 8 the opposite condition prevails. Here the principal spike is upward in Lead I and in Lead III is downward. This shows that the left ventricle is relatively

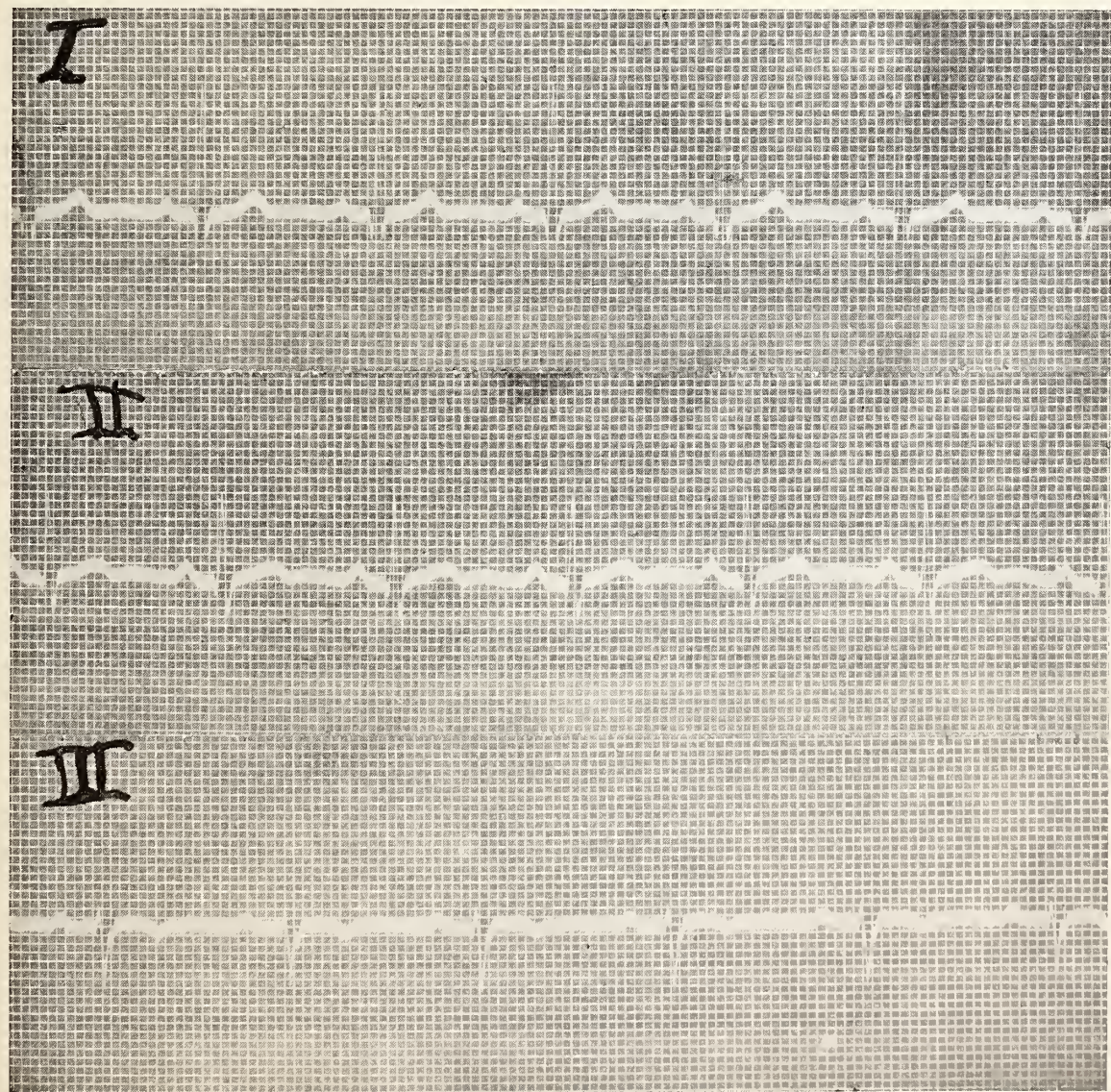


Fig. 8

enlarged. In neither case does it mean that the other ventricle is not enlarged also, but simply that that ventricle is enlarged to a greater degree from normal than the other. This knowledge is quite useful in some cases, as, for instance, in suspected mitral stenosis, where the murmurs are not typical, for a relative enlargement of the right ventricle would be an additional link in our chain of evidence, as mitral stenosis so much increases the burden on that ventricle.

Always, however, is it necessary to correlate the clinical findings with the electrocardiogram, for it can never take the place of physical examination. He who expects to get by it an easy and ready-made diagnosis is doomed to disappointment. It is not a nickel-in-the-slot machine, and cannot be

made so. The age-old methods of inspection, palpation, percussion, and auscultation remain as important as ever. But as we can never acquire too many facts for a basis for diagnosis the electrocardiograph can help us enormously. The significance of an inverted T, the signs accompanying coronary occlusion, the varying degrees of heart block, to mention only a few of the answers the electrocardiograph will give to our inquiries, all tell us what is going on in the heart itself, as no other means does, and with the information thus acquired we are far more likely to come to a correct realization of the condition presented to us, and be able to direct more intelligently our therapeutic attack.*

*See, in this connection, an article on Abdominal Pain by Dr. Harry Gauss, *Colorado Medicine*, April, 1928, p. 108.

BENIGN GLYCOSURIA

J. C. KAMP, M.D.,
CASPER, WYOMING

Christian Bohr, the Danish physiologist, has often emphasized the importance of studying the organism's regulating mechanisms by which it adapts the functions of the various organs to each other and thereby insures the equilibrium of the whole necessary for maintaining a healthy, undisturbed life. Julius Bauer, of Vienna, during his address at the meeting of the American College of Physicians at New Orleans in March of this year, stressed the importance of recognizing the compensation of the body during disease. Perhaps one of the most interesting compensations is that of the blood-sugar, both on account of its great significance in insuring an undisturbed metabolism and also because quite minor disturbances in this regulation manifest themselves by abnormal phenomena in the individual. We know that the liver is the storehouse or reservoir for sugar between the intestine and the blood, but we must also remember that the organism possesses the ability of maintaining a certain concentration of glucose in the blood by the sugar threshold. The normal blood-sugar is between 90 and 110 mgms. in 100 c. c. of blood while the normal threshold is between 160 and 180 mgms. in 100 c. c. of

blood. This is not true of all cases and sometimes we find that a sugar threshold of 205 mgms. in 100 c. c. of blood is maintained without the appearance of sugar in the urine. If the fasting blood shows a normal blood-sugar, then after the ingestion of 50 grams of glucose the blood-sugar should rise to 180 mgms. without the appearance of sugar in the urine; and it will not rise any higher should the individual ingest 100, 200 or even 400 grams of sugar, but should we find an individual with a low threshold, then after the ingestion of glucose, sugar will appear in the urine below that it does in the normal individual. Two forms of this benign glycosuria are interestingly described by Professor Knud Faber of the University of Copenhagen, at the Herter-Fund lecture delivered in Baltimore in 1926, where he describes the renal and alimentary variety. The alimentary variety, due to a high alimentary rise above the normal height, is of more importance, perhaps, because we see this condition sometimes in early, true diabetes, and of course should be watched rather carefully until true diabetes can be ruled out, while the renal variety merely means a subnormal condition in the relation of the

blood-sugar to the renal threshold. Holst, in examining 163 applicants for life insurance who had been turned down by insurance companies because of sugar in the urine, found that only 30 per cent were true diabetes and the others were suffering from benign glycosuria. The importance of this rather rare condition must be recognized and the patient carefully kept under observation to determine definitely the differential diagnosis between benign glycosuria and true diabetes. Certainly its importance cannot be over-estimated because of its relation to the patient from an economical, diagnostic, prognostic and treatment standpoint. The patient coming to the office with a specimen of urine who has already been told that he has "sugar-diabetes" is very much alarmed and he has reason to be alarmed should it prove to be true diabetes, even in this day of Insulin treatment. The real work of the differential diagnosis should commence. The patient should really be put to bed in the hospital where he can be carefully watched and that all the laboratory tests can be carried out, and not alone that, but the clinical manifestations can be carefully analyzed and recognized.

Benign glycosuria never shows any of the symptoms that true diabetes does, but one must remember that early diabetes rarely show symptoms and also the alimentary variety as mentioned above, might be the meaning of the onset of early, true diabetes. One need never be afraid of placing these patients in the hospital and putting them on a moderate diet, of say about 60 grams of protein and a sufficient amount of carbohydrate and fat of equal proportions to make about 1,500 calories and then watching the rise of the blood-sugar and its relation to the appearance of sugar in the urine. This diet is sufficient, while the patient is in bed, to keep him in fairly good condition and to make a thorough differential diagnosis. The patients with benign glycosuria never show sugar in the urine in the sample passed before breakfast, but during the day, after the ingestion of carbohydrates, one may find sugar. It is not the purpose of this paper to go into the detail of the treatment of true

diabetes with Insulin, but the fact might be mentioned here that the purpose of Insulin, as given out by Best at the meeting of the American College of Physicians in Cleveland last year, is that to conserve the sugar in the muscles, to allow the sugar to be absorbed through the capillaries into the muscles, to maintain a certain height of the sugar in the blood and to help in the proper chemistry of the fats in the blood, and consequently to prevent acidosis. In benign glycosuria, none of the above conditions ever exist, nor is there evidence that there is a disfunction of the pancreas. The question of whether these cases of benign glycosuria will ever develop true diabetes has been thoroughly considered by Professor Faber in his "Lectures on Internal Medicine," published in 1927, where he states that he has never known of a case which was decidedly fixed as benign, turn out to be a true diabetes. Some of these cases have been followed as long as twenty-seven years without the appearance of any symptoms relating to true diabetes. It has also been shown that this constitutional abnormal property is, as a rule, a family or a hereditary weakness. The low threshold, therefore, is an individual characteristic and not a sign of true metabolic disturbance, not due to any morbid process but a congenital abnormality. Clinically, this condition might be termed cyclic glycosuria. In the morning the urine is sugar free and during the day, after taking carbohydrates, sugar appears in the urine, which again disappears during the night. It is definitely known that the position of the threshold may vary greatly in different individuals, but in the same individual the position is constant during his or her lifetime. Reviewing, carefully, the work of Faber, Hagedorn, Hanson and Holst of Europe, and the works of Williams and Humphreys of this country, we can safely say that we have, then, two definitely different conditions. I have three of these cases under observation now. They have been thoroughly checked and it may be definitely stated that all three are benign glycosuria. Two are in one family and one is a man who has been carefully checked. Two of the three cases had been

previously diagnosed as true diabetes. Figuring the number of cases of true diabetes under treatment in this office now, the percentage is very close to that mentioned by Holst.

CASE REPORTS

A little girl, 4 years of age, where sugar had been found in the urine in a sample taken at random during the day, during a routine examination. The diagnosis of benign glycosuria was made after the following tests: The fasting blood-sugar was 70 mgms. per 100 c. c. of blood. After giving 50 grams of glucose it jumped to 190 mgms., with the appearance of sugar in the urine. After 40 minutes the blood-sugar had reduced to 150 and another 50 grams of glucose was given and the blood-sugar, after the second dose of glucose, was only 90 mgms. per 100 c. c. of blood. This was repeatedly checked and while there were slight differences in the rise and fall of the blood-sugar after the ingestion of glucose, very little material difference was noted from that above. The second case was the mother of the above mentioned child where the normal blood-sugar showed 110 mgms. after the ingestion of glucose it jumped to 140 with the appearance of sugar in the urine and within an hour, back to 110 and the fasting blood-sugar showed but 80 mgms. The third case is a man of about 65 years of age, who shows very similar results to the two cases mentioned above. The 4-year-old girl mentioned above had been under treatment, dietary and Myrtilin, without any change in her condition; this treatment has been stopped for over a month and she has shown no difference in her condition. The mother of this child mentioned above has had no treatment whatever, she understands her condition thoroughly and cooperates very well in allowing us to watch her from time to time. The other patient is living a normal life, no special diet or other treatment and seems to suffer no ill effects from his abnormality.

J. C. KAMP, M.D.

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Williams and Humphries, Clinical significance of blood-sugar in nephritis and other diseases. Arch. Internal Medicine, Chicago, 1919.

NEW FINDINGS*

I have found that by withdrawing about 5 c. c. of blood from a vein and re-injecting it into the muscles of the gluteal or subscapular region, that in about twenty-four (24) hours a characteristic reaction occurs. The red blood cell count in some cases is almost doubled, and corresponding with it is the rise in the white count which also increase by several thousand.

The blood is simply withdrawn into a syringe, and immediately injected into the muscles without any treatment. I would

*The author submitted some interesting statistical data as proof of claims made.

advise that care be taken not to inject the blood close to any of the larger blood vessels or nerves.

I am not positive as to how long the higher the count can be maintained at a definite are made about every second or third day, the count can be maintained at a definite point.

I have been using this method in treating secondary anemia, no matter what the cause, with surprising results. I have not had occasion to try this method in treating any primary anemia, but there can be no reason why it should not be used.

I am not in a position to state at present what other diseases may be treated by this method until further study is made.

The two charts which are attached show the reactions in two different types of cases; one a carcinoma of the stomach; the other a case of tick-fever, both show results, but much more so the carcinoma.

E. S. LAUZER,
Rock Springs.

What the Newspapers Want

We have frequently intimated in these columns that health officers who fail to secure publicity for health work in their local newspapers are missing an opportunity to make their work more effective and easier to accomplish.

A frequent response to such a criticism is that the newspapers won't use the copy. This indicates either a lack of good feeling between the health officer and the editor or the inability of the former to prepare good copy.

Advice on how "to get by the city editor" is furnished by the publication Better Times in a report of talks by newspaper men of Boston before a meeting of the Council of Social Agencies. Summing up their advice, the council's bulletin says:

"The papers want what will be read. The topic is relatively unimportant. Tons of copy are discarded every week. Whatever goes in, gets there after a contest. Don't write on tissue. Don't single space. Manifold copy is self-evident not exclusive. Put the news story in the first paragraph, or lead. And be brief. Short, interesting news items have a real chance. Long copy if used at all is pretty sure to be cut.

"The papers are some 95 per cent emotional and about 5 per cent intellectual. They are interested in persons rather than things. And they are interested in persons only when they are doing something unusual, or where they are so different from others as to constitute news. Pictures help."

Saved

"Oh, doctor, I'm so anxious about Mrs. Smythe. She is under your care, is she not?"

"She was, but I'm not attending her now."

"Ah; then she is out of danger?"—M. M.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 11, 12, 13, 1928.

OFFICERS, 1927-1928**President**, William A. Sedwick, Denver.**President-elect**, Samuel B. Childs, Denver.**Vice-Presidents**, 1st, James M. Lamme, Walsenburg; 2nd, W. B. Hardesty, Berthoud; 3rd, R. H. Finney, Pueblo; 4th, R. B. Porter, Glenwood Springs.**Secretary**, F. B. Stephenson, Denver.**Treasurer**, L. W. Bortree, Colorado Springs.**Delegates to the American Medical Association:**

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District 1. Ella A. Mead, Greeley	1930
District 2. G. P. Lingerfelter, Denver	1929
District 3. John R. Espey, Trinidad	1928
District 4. W. W. Crook, Glenwood Springs	1931
District 5. A. W. Robbins, Durango	1932

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TUNING IN

Report on Birth Registration in Denver

To determine the accuracy and completeness of birth registration in Denver, the Bureau of Vital Statistics, hospitals and maternity homes were visited, also obstetricians and members of the medical profession generally were consulted.

It appears that hospitals and maternity homes report 100 per cent.

The greatest delinquents are parents in private home cases and physicians in attendance at these cases. The parents do not realize the importance of birth registration and many physicians are careless in this respect.

As a class, the midwives report better than physicians.

There are undoubtedly some under cover places conducted to conceal illegitimate births, which of course are not reported.

Sometime in the past the Bureau of Vital Statistics asked all physicians handling obstetrical cases to scan their books for unreported births. When possible to do this, about 400 more births were recorded than reports were averaging per year.

In one year the Bureau of Vital Statistics' search the official files more than 2,000 times upon request of persons seeking birth certificates. The parents of those children not recorded are considerably inconvenienced hunting up the physician who attended the birth or swearing out affidavits as to the authenticity of papers they fill out themselves.

In many unrecorded cases it is impossible to prove any of the facts concerning date and place of birth.

A test of the extent of birth registration in Colorado will soon be conducted by the U. S. Census Bureau. This state will be admitted to the U. S. Birth Registration area if the test shows that 90 per cent of the births are registered. All states, with the exception of seven (including Colorado) have now been admitted to this area.

The public has regarded the registration of births and deaths as of interest to the medical profession only, and not important to the general public. This is not the fact, however, and it is a great social problem vitally important to all classes of people.

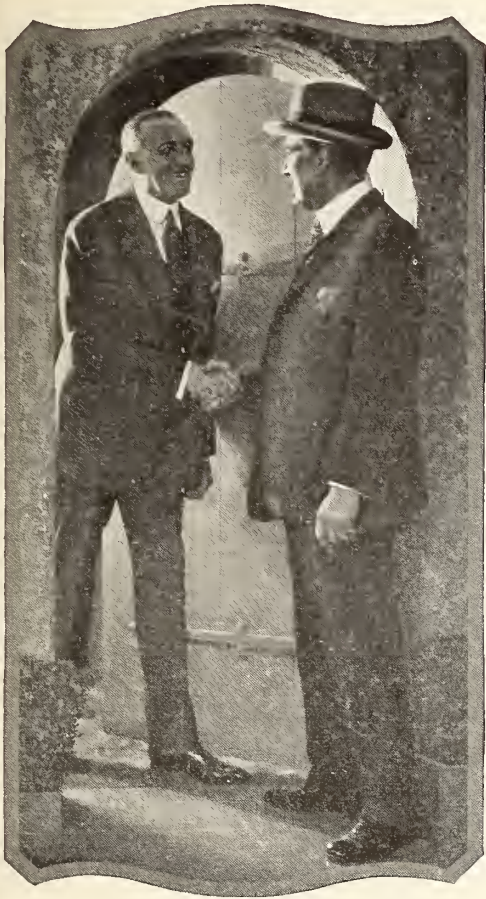
The entire public would be benefited by prompt registration of all births for the following reasons:

I. It is necessary for the accuracy of the records of the Health Department. The death rate of children under one year is based on the number of deaths per thousand live births. A death has to be reported as a burial permit cannot otherwise be obtained and without which no undertaker or cemetery will handle a body. On the other hand, if but a relatively small per cent of the actual births are recorded the infant death rate is published by the government as possibly considerably higher than is actually the case, and Denver loses the favorable publicity to which it is entitled.

II. It would insure that the millions of dollars obtained from public and private sources dedicated to the protection of infants, welfare of the young and development of the race may be intelligently employed.

III. Reduces infection and mortality rates among women and babies through educational propaganda.

IV. For correction of the death record.



"He is a pretty healthy man today who can live as long as a diabetic."

ELLIOTT P. JOSLIN M. D.

A STARTLING statement this, yet one made by no less an authority than Dr. Elliott P. Joslin of Boston, Mass. In a recent article* he calls attention to the fact that the life span of a certain group of diabetics increased more in the last few years than the life span of a large non-diabetic insured group. This is particularly significant since the insurance company was dealing with presumably healthy individuals whereas the diabetics were handicapped at the start. This lengthening of life of diabetics Dr. Joslin attributes to the introduction of Insulin, exclaiming "He is a pretty healthy man today who can live as long as a diabetic."

"George, you look great . . . five years younger than when I saw you last! For a diabetic I should say you're a very healthy looking fellow. Come in."

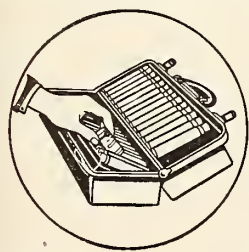
"Thanks, Ed, I do feel years younger. Since I started the use of Insulin I'm living a normal, active life, free from worry. It sounds paradoxical, but I am now a very healthy diabetic."

Insulin Squibb is prepared under license from the University of Toronto. Samples of every lot are submitted to the Insulin Committee there, and may be depended upon to conform to the standards established and maintained by that Committee.

Insulin Squibb has a particularly low nitrogen content, is remarkably free from pigmentary impurities and reaction-producing proteins, accurately standardized, uniformly potent, and is highly stable.

Insulin Squibb of 10, 20, and 40 units per cc. strength is distributed in 5 and 10 cc. vials. Insulin Squibb of 100 units per cc. is distributed in 10 cc. vials only.

*(New England Journal of Medicine, April 12th, 1928—page 379).



Diabetic coma is an accident—it can and should be avoided. Since Insulin is highly stable, a physician can not only carry it in his bag but have an additional supply in his office—Be prepared for an emergency.

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- V. To force compliance with the law.
- VI. Would permit Denver and Colorado to participate in the many benefits granted all states admitted to the U. S. Birth Registration area.
- VII. A birth certificate is of great importance to the child in after years for it will prove useful in innumerable ways:
 1. Proves age, birthplace and parentage.
 2. Establishes identity.
 3. Proves legitimacy.
 4. Shows when he has a right to enter school.
 5. Shows when he has the right to seek employment under the child labor law.
 6. Establishes legal dependency.
 7. Establishes the right to vote.
 8. Establishes the right to inherit property and proceeds of life insurance policies.
 9. Establishes the liability to road duty.
 10. Proves the age at which the marriage contract may be entered into.
 11. Prevents prosecution in certain criminal proceedings.
 12. Establishes the birth of American-born children of foreign-born parents.
 13. Establishes the right to hold office.
 14. Proves right to serve on jury.
 15. Qualifies to hold title to and to buy and sell real estate.
 16. Establishes right of admission to certain professions.
 17. Qualifies for entering military service.
 18. Aids in settlement of claims of widows and orphans.
 19. Necessary in settlement of pensions and government compensation.
 20. Proves liability for tax on income.
 21. Necessary for issuance of passports.
 22. Proves exemption from military service in foreign countries.
 23. Proves American citizenship in case of legal complications, in foreign countries.
 24. Necessary for immigration.
 25. Some states require proof of age before auto driver's license is issued or certain classes of skilled labor is permitted.

HEALTH COMMITTEE OF THE CITY CLUB.

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Health Activities for Pre-school Children

A report recently prepared by the director of the Buffalo Foundation includes an analysis of the information obtained by replies to questionnaires concerning urban health activities for pre-school children, which were received from 120 cities representing about 50 per cent of the total urban population of the United States. The summary shows that though some of the cities have well-rounded programs for the care of the pre-school child and others have made good beginnings, "an amazing number" of even large cities have taken practically no steps at all. The report urges among other things that health departments assume more responsibility for health work for children of this age, and that they keep more detailed records of what they do.—Children's Bureau.

"Where were you born?"

"In a hospital."

"No, kiddin'! What was the matter with you?"
—M. I. T. Voo Doo.

Summer Diarrhea

The following formula provides a means of supplying the principal fuel utilized in the body for the production of heat and energy and furnishes immediately available nutrition well suited to protect the proteins of the body, to prevent rapid loss of weight, to resist the activity of putrefactive bacteria, and to favor a retention of fluids and salts in the body tissues:

Mellin's Food

4 level tablespoonfuls

Water (boiled, then cooled)

16 fluidounces

While the condition of the baby will guide the physician in regard to the amount and intervals of feeding, the usual custom is to give one to three ounces every hour or two until the stools lessen in number and improve in character. The food mixture may then be gradually strengthened by substituting one ounce of skimmed milk for one ounce of water until the amount of skimmed milk is equal to the quantity of milk usually employed in normal conditions. Finally the fat of the milk may be gradually replaced, but as milk fat is likely to be digested with much difficulty after an attack of diarrhea it is good judgment to continue to leave out the cream until the baby has fully recovered.

Further details in relation to this subject are set forth in a pamphlet entitled, "The Feeding of Infants in Diarrhea", and in our book, "Formulas for Infant Feeding".

This literature will be sent to physicians upon request.

Mellin's Food Co.,

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Boston, Mass.

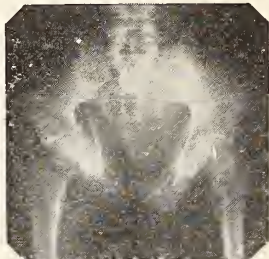
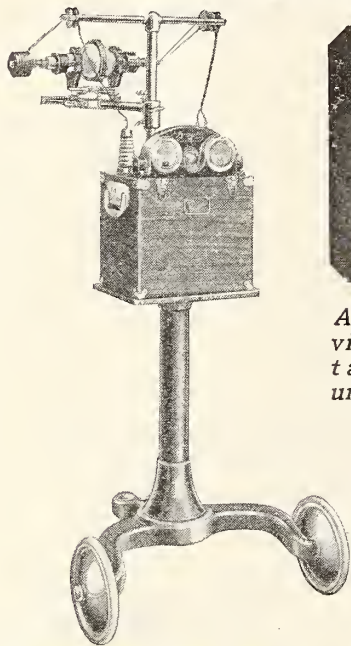
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Damage From Smoke Is Costing Every Citizen \$17 a Year, Say Experts

Material damage and incalculable harm to the public health are both chargeable to the burning of raw coal and the resultant smoke palls which overlie most American cities, according to a recent statement by the United States Public Health Service. In New York City, the report says, smoke reduces the sunshine by from 18 to 42 per cent during the winter months.

"The figures given show the great importance of getting rid of smoke in our cities," declares the report. "Loss of daylight is not the only evil resulting from the presence of smoke in the atmosphere; smoke also cuts out to a much greater extent the ultra-violet rays, which are so necessary for good health. Sunlight is of profound interest and importance to us all, since most of our work is performed under it. The preservation of our eyesight, the general health of our bodies, and the prevention of accidents are largely dependent upon having plenty of sunlight."

Seventeen dollars a year is the price paid by every inhabitant of the United States for property damage caused by smoke, according to a recent estimate made public by the Merchants' Association of New York.—Public Service Bulletin.

Term "Antiseptic" Explained Under Federal Food and Drugs Act

An investigation has been made by the Food, Drug and Insecticide Administration of the United States Department of Agriculture of those drug products on the market which are described as antiseptics. In order to answer numerous inquiries from the trade as to the propriety under the federal food and drugs act of designating these articles "antiseptic," the administration has issued the following statement:

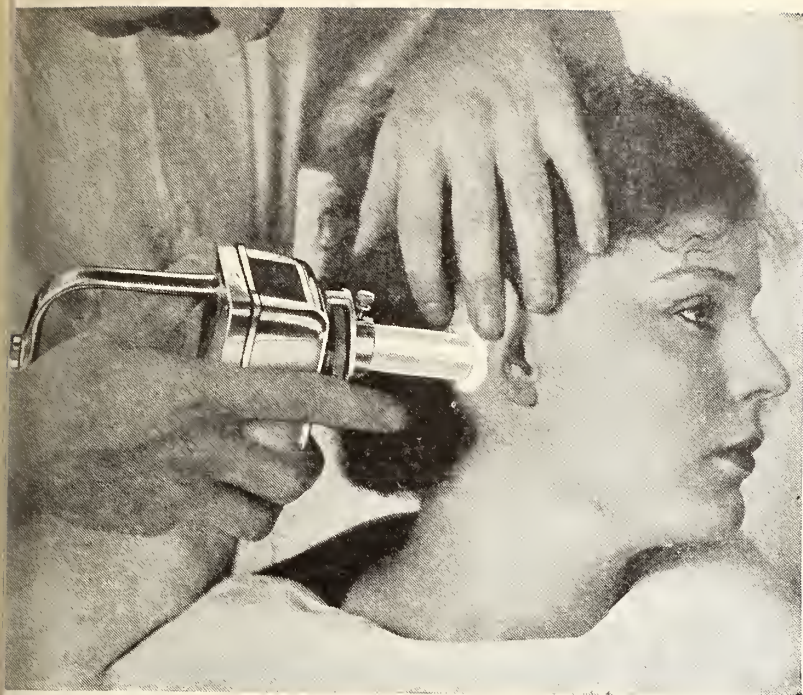
"Current dictionaries give two meanings for the word 'antiseptic.' According to these authorities an antiseptic may either kill bacteria or prevent their growth. Products such as salves, ointments and dressings, which remain in contact with the body for long periods of time, may properly be designated as antiseptics if they inhibit the growth of bacteria. On the other hand, mouth washes, douches, gargles and preparations of like nature, which are in contact with the body for but brief periods of time, and because of this cannot exert any inhibitory action, may properly be described as antiseptics only if they will destroy bacteria under the conditions of use; that is, in the dilutions recommended, and in a period of time comparable to that in which they would have an opportunity to act when used as directed."—Department of Agriculture.

Summary of Studies on Prevalence of Syphilis and Gonorrhea

During the past year, for the first time in America, there have been several studies of the prevalence of syphilis and gonorrhea. The purpose of the surveys has been:

- (1) To determine the prevalence of syphilis and gonorrhea at a particular time;
- (2) To establish a base line from which to measure future changes in the trend of these diseases.

The method of collecting the data has varied somewhat in the different studies, but the aim has been to get complete information regarding all cases of syphilis or gonorrhea under treatment or observation by physicians, hospitals or institutions as of a particular day.—Health News.



Scientific control in local applications

Have all kinds of ULTRA-VIOLET the same effect?

IO, for some will cure rickets—others will not—some will inburn—some won't. The reason for the difference between the ultra-violets is the wave length. Clinical evidence suggests strongly that rays from mercury vapor quartz lamps are of considerable value in certain forms of disease.

"Ultra-violet light from the air-cooled mercury vapor quartz lamp is a specific in tetany, rickets, and spasmophilia, and is very valuable as a general tonic in depressed bodily states such as anorexia and some cases of anemia, and in poor nutrition . . ." The Atlantic Medical Journal, Vol. XXXI, No. 8, May, 1928, pages 537-542.

The KROMAYER LAMP is for irradiating small local areas and cavities. It assists materially in the successful application of rays to those conditions for which it is indicated.

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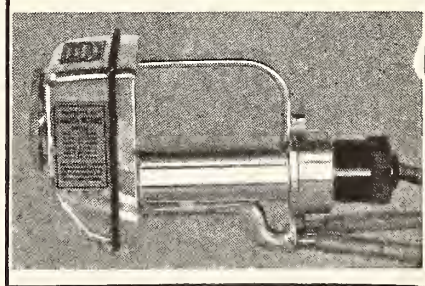
If there were no other advantages in the KROMAYER LAMP—if the mechanical excellencies that make for scientific precision and utmost convenience were eliminated—there would still remain one strong reason for its use—the HANOVIA Burner.

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Children's Hospital of Cincinnati Receives Gift.

Mr. William Cooper Procter, the president of the board of trustees of the Children's Hospital of Cincinnati, has announced a gift of \$2,500,000 to that institution, to be expended mainly for teaching and investigation. It is planned that approximately \$500,000 will be spent in the development of a building housing research laboratories and the necessary adjuncts thereto, and in further development of the out-patient clinic. The Children's Hospital of Cincinnati is very closely affiliated with the College of Medicine of the University of Cincinnati through its Pediatric Department, the Professor of Pediatrics in the College of Medicine being the Chief of Staff and Medical Director of the Children's Hospital. This gift is of especial significance in that it makes possible not only the expansion of the hospital and laboratory work, but also the development of research and investigation in children's cases. The latter will include studies in the clinic and laboratory pertaining to the treatment and prevention of diseases, as well as studies in medical social service. The large portion of many bequests made to hospitals are chiefly for construction of buildings and their equipment. As will be noted in the paragraphs describing this bequest, the proceeds from this endowment are to be expended chiefly in teaching and investigation.

Barber Surgeons

The barber's calling is one of the oldest of which there is any historical record. The barber's razor is referred to by the prophet Ezekiel (Chap. V, Verse 1).

There are plausible arguments for the belief that in mediaeval times the surgeon evolved from the ancient but humble barber. It seems that the clergy of the Christian Church practiced medicine and surgery until the 12th century and was assisted by the barber. During the pontificate of Pope Alexander III, the Council of Tours in the year 1163 prohibited the clergy from practicing surgery because it involved the letting of blood. After the Edict of Tours the clergy continued to practice medicine, but the barber fell heir to surgery.

In 1307 an ordinance was passed prohibiting the barber-surgeons of London from displaying blood in their windows to attract trade, and compelling them to dispose of it in the River Thames. This is probably the oldest measure on record affecting the sanitation of barber shops. In the year 1745, during the reign of George II, King of England, an act of parliament separated the barbers and surgeons and prohibited each group from practicing the calling of the other. The barbers, however, were still legally permitted to extract teeth and many of them continued to dress wounds and perform phlebotomy (blood-letting) for a long time afterwards.—Chicago's Health.

We Men

A young husband had just come home from work and asked his wife to run a hot bath for him. While he was disrobing in the next room and she was preparing his bath, he called in to her, "Honey, put some bath salts and perfume and stuff in my bath, will you please?"

"Why, Charlie," she said, "what do you want with that stuff? That will make you smell like a girl. A man like you should have a nice manly smell about him."

"All right," said he. "I'll go out and bathe in a manhole then."—Wash. & Lee Mink.

Colorado Medicine

Published by the Colorado State Medical Society

PUBLICATION COMMITTEE

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EDITOR:

C. F. KEMPER, M.D., Denver, Colorado.

VOL. 25.

SEPTEMBER, 1928.

No. 9.

EDITORIAL NOTES AND COMMENT

EVOLUTION IN ORGANIZATION

Fifty-seven years ago twenty-five physicians met in Denver for the purpose of organizing the Colorado Territorial Medical Society. At that time, according to the best medical records of Colorado, one, Doctor R. G. Buckingham, of Denver, closed a consummate oratorical effort somewhat as follows: "Thanking you for your kind attention, let me urge upon you the immediate consideration of the importance of the subject of organization, and may the time soon come when the Territorial Medical Association of Colorado will rest upon as firm a basis as the grand old mountains before us, that lift their snow capped summits to the clouds." While historical criticism has not yet established whether the speaker was recording a fact or administering a rebuke in the matter of attention, it is certainly evident that his plea for organization was taken in the most serious manner. It is barely possible that the twenty-five auditors may not have created a social structure of the endurance and solidity of the "grand old mountains," it is certain, however, that they brought into existence an organization which, taken in conjunction with its immediate successor—the Colorado State Medical Society—has been and remains the most powerful force working in the direction of the best in medicine within the borders of our state.

That humble meeting in the District Court Room of Denver, September 19, 1871, was a long time ago. Since that occasion most of what we now consider scientific medicine

has come into being. Bacteriology, aseptic surgery, preventive medicine, biochemistry, endocrinology and a number of other new but established branches of modern science have come to constitute the fabric of a general practice. Despite the great change in this branch of knowledge there is not commensurate change in the social structure of organized medicine. The founders created a society along lines similar to our own. They determined that it was well to meet once a year, to elect a president, several vice-presidents and other officers and to appoint standing committees. While the Society has shown a natural growth in membership, the machinery which was formed to look after the organized profession then has seen no material change. Without precedent they created an organization which we seem to have found almost perfect and therefore unable to add to or take from save in matters of detail. Is it likely that our professional forbears were unusually wise as to organization and backward as to medical science or have we been unusually apt in all other than social sciences? J. H. Robinson* contends that the science of government always lags behind other sciences. This is perhaps true in our medical organization. Mere growth in membership is certainly not enough. Fifty-seven years of monotonous repetitions of what charter members planned may be complimentary enough to them but decidedly not in our favor.

At this season of year when the delegates are attempting to determine who shall re-

* "The Mind in the Making."

ceive the honorable offices created fifty-seven years ago, or at least who are worthy of stout opposition to such honors, it might be pertinent to reflect on the possibility of some fundamental change in administration. Voluntary fire departments are obsolete. They have been replaced by more efficient fire fighting experts hired for the purpose. A voluntary fire department would be no more of an anachronism than is our present voluntary system of looking after things medical. Because of our failure to provide for an efficient executive secretary we continue to muddle through in matters for which we lack training, time and interest. It seems to the Journal that provision for such an administrative officer might well claim first place on the agenda of the House of Delegates Meeting, September 10th, 1928.

THE STUDY OF FEAR

What is the origin of fear? Why are people afraid of the dark, of high places, of thunder and lightning, and of countless other things that enter into human experience?

To this question psychology furnishes an answer, though probably not a complete solution.

In the first place, it is certain that fear results from experience. A child who has had a painful accident may come to dread the doctor and nurse who attend him. The fear is unreasoning, the child being guided by experience and not by logic. Lack of logic may lead him to still further fears; thus he may come to dread all men who carry black bags and all women who wear white uniforms.

Such fear is easily understood. It results from association, and when the fear association is established it tends to protect the child from contact with painful situations.

In addition to the fears that the child learns from direct experience, there are many that he requires indirectly. When he is told not to touch a dog because the dog may bite him, he comes to fear dogs without establishing actual pain associations. In

this manner he may learn to fear dogs and horses and policemen, though they have never harmed him; and he may dread burglars and bogey men, though he has never encountered them. In this manner he learns fear through vicarious experience, or what in good faith he takes to be such experience. Undoubtedly many of our fears are of this character—fear of the dark included.

Thus far the problem of fear is simple, for we have dealt merely with experience and training. The matter becomes less clear when we consider instinctive fears. With such fears experience and training are excluded; hence we must seek a different explanation of their origin.

An explanation is attempted with the theory that the child is born with a ready made set of fear reactions, these reactions being protective to the child or having formerly been protective in the history of the race. Thus it is thought that the child instinctively fears solitude, darkness, high places, strange animals, loud noises, and many other things that might signify danger. The theory is in accord with biological thought, but no harmony of opinion has been established as to the scope of these inherited reactions.

In contrast to this elastic theory the behavioristic psychologist maintains that there are only two instinctive fears. He believes inherited fear to occur only in response to loud noises and loss of support. It can be shown experimentally that the child displays fear when assailed with loud noises, or when he is dropped in a blanket or when a blanket is jerked from beneath him. The behaviorist then demonstrates that other fears can be established by association—which he calls “conditioning.” The experiment is as follows:

A child is allowed to play with an animal, a rabbit, for instance. He is found to handle the animal without fear. This point having been established, the child is now “conditioned.” As he reaches again for the rabbit, a steel bar behind his head is struck with a hammer. There is a resounding clang, and the child recoils from the animal in terror. Later the procedure is repeated,

and the child is soon brought to the point where even the sight of the rabbit occasions fear.

When the child has been thoroughly "conditioned," it is often found that he fears not only rabbits, but other animals as well. He may even fear furry objects, such as rugs and muffs, for he has learned by a sort of common sense generalization to attach his fear reaction to all objects that bear likeness to the original bugaboo of the experiment.

Experiments of this kind confirm the fact that fear can be established by association, but they fail to prove what the behaviorist contends—that instinctive fear is caused only by loud noises and loss of support and that all other fears result from "conditioning."

A more rational theory of instinctive fear is that sponsored by Stern; namely, that fear is occasioned by strange and mysterious things. This conception is broad enough to include not only the reactions to loud sounds and loss of support, but many other fears that have the appearance of specific inherited reactions.

Yet even Stern's theory needs modifying, for if mere strangeness occasioned fear, then we should expect the new-born child to live in a state of perpetual terror. It would probably be more accurate to formulate the theory of instinctive fear as follows: Things cause fear when they are strangely different from our past experience. The emphasis is then on difference or contrast, rather than on mere newness.

According to this theory loud noises and loss of support might occasion fear in the new-born infant because they stand in contrast to his intra-uterine experience. Later other things contrast themselves to his experience. At a few months he may be frightened by the deflating of a rubber balloon or by the opening of an umbrella. Later he may be terrified by a masked face or by a strange animal. Even in adult life he may be frightened by unaccustomed things, such as a human hand unattached to a human body.

It seems that in any period of life things

can occasion fear when they are strikingly different from our past experience. Perhaps this theory does not fully explain instinctive fear, but it has much observation to support it.

The study of fear is of great importance in normal and abnormal psychology. It is certain that we do not yet understand all aspects of the problem, but gradually the matter clarifies as philosophic conjecture gives way to scientific study. C. S. B.

NEW CONSTITUTION AND BY-LAWS

A 1928 printing of the Constitution and By-laws of the Colorado State Medical Society, as revised to date, has been completed. Distribution to the secretaries of the various constituent societies has been made in sufficient quantities to probably meet the demand from members. Additional copies may be obtained from the secretary upon request.

This carries out the directions of the House of Delegates.

F. B. STEPHENSON, Secretary.

Lymph Glands of Food Animals Discussed in New Circular

"The Regional Lymph Glands of Food Animals" is the subject of Circular 32-C, by Drs. John S. Buckley and Thomas Castor of the Bureau of Animal Industry, just issued by the United States Department of Agriculture.

The publication contains detailed information on the lymphatic apparatus of animals whose flesh is used for food.

The circular points out that the lymphatic apparatus in a normal, healthy animal is made up of a system of tubes or conduits sometimes designated the white blood vessels, coursing as intricate and extensive networks in practically all tissues except muscle bundles, intermuscular sheaths, nerves, and blood vessels. In many respects the lymph vessels resemble the veins of the blood vascular system in both structure and function. The lymph system also includes capillary vessels. Throughout the lymphatic system there occur numerous glands which perform important functions and which are also subject to the inroads of disease organisms and parasites. The lymphatic system, sometimes referred to as "the scavenger of the body," by protecting the body from disease, also furnishes a route of entry for infection.

Numerous illustrations accompany the text and show the position and appearance of the principal glands. The circular is technical in character and is intended for the information of meat inspectors, veterinarians, doctors, and pathologists. Copies may be obtained on request to the Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.—U. S. Department of Agriculture.

THE PRESENT STATUS OF THE TUBERCULIN TEST IN CHILDREN*

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The discovery of the tubercle bacillus inspired Koch with the hope that it might be utilized to increase the resistance to tuberculous infection. To his keen disappointment he found that the injection of the product of its growth, designated tuberculin, brought about in the tuberculous individual a train of symptoms including fever, malaise, headache, and frequently a decided aggravation of the pulmonary lesion. On the other hand, even massive doses of the same product, when injected into the non-tuberculous, failed to elicit the slightest response.

Koch believed that these phenomena in affected individuals arose from the interaction of the injected tuberculin and the toxic products resulting from the activity of the tubercle bacilli within the organism; and regarded the reaction of diagnostic import. The same opinion was held by Wolf-Eisner who looked upon the tuberculin reaction as an expression of specific immunity. These views were fortified by the work of Bordet and Gengou who, in 1903, demonstrated the presence of immune bodies for tubercle bacilli in the sera of tuberculous animals; and in 1906 by that of Wassermann and Bruck, who found such bodies in patients treated with tuberculin; and that of Besredka who, in 1914, identified the same product in untreated tuberculous patients.

On the other hand Inman, Kuss, and others have shown that the tuberculin reaction is non-specific in character; and this view prevails today. Selter states that in the tuberculous organism changes take place which render it more sensitive to all exogenous influences. According to these observers, the response of the affected individual to the injection of any foreign protein, or of certain chemical substances, and even to excessive physical exertion is quite similar to that provoked by tuberculin. And, tuberculosis-free individuals may react to tuberculin, as do the tuberculous. Nor is ana-

tomic proof lacking to strengthen these views. Autopsies occasionally fail to disclose tuberculous lesions in those who gave a positive reaction during life, and may disclose them in those who had reacted negatively. In cattle only 85 to 90 per cent reacting to tuberculin showed tuberculous changes and 10 per cent of the non-reactors revealed tuberculous lesions when slaughtered.

The evidence marshalled to disprove the specificity of tuberculin is seemingly convincing and conclusive. Nevertheless nearly all clinicians today accept this agent as a measure of immunity to tuberculosis. This is notably true of pediatricians who have made extensive application of the tuberculin test since its modification by Von Pirquet in 1907. So competent an observer as Krause finds that the tuberculin reaction occurs under the same conditions as does immunity to infection. Heimbeck's observations over a period of four years are strongly confirmative of this view. He found that only those nurses who gave a negative Von Pirquet reaction developed tuberculosis. Arguments opposing its specificity, though unassailable, do not militate against its acceptance as evidence of the presence of a tuberculous infection, any more than the non-specificity of the Wassermann test detracts from its value as a diagnostic criterion in syphilis. Fraenkel as far back as 1900 found the discrepancy between autopsy findings on cattle and the outcome of the tuberculin reaction to be only to 2—3 per cent in 8,000 cases collected from the literature. Vages in 1905 confirmed these figures. Moreover a positive tuberculin reaction in non-tuberculous individuals occurs only in a very few conditions and these are never confounded with tuberculosis. And furthermore, when a tuberculous individual responds to a non-tuberculous antigen, massive doses thereof are required, contrasting strikingly with the infinitesimally small amount of tuberculin capable of eliciting a reaction.

*Read at the annual joint meeting of the El Paso and Denver Sanitarium Associations, April 21, 1928.

Nature of Tuberculin

Tuberculin consists essentially of fragments of disintegrated tubercle bacilli, extracts of their protoplasm, and of the soluble products of their growth, in a medium reduced by evaporation to one-tenth its original volume; and then augmented by adding an equal amount of glycerin. Krause states that no soluble toxin of the tubercle bacillus has as yet been demonstrated.

Method of Performing the Tuberculin Test

The subcutaneous test, introduced by Koch in 1891 was for many years, the only method in use. It is performed by introducing subcutaneously one-tenth c. c. of 1 to 1,000 solution of old tuberculin, representing one-tenth mg. of O. T. Some advocate an initial dilution of 1 to 10,000. If no reaction is noted in forty-eight hours, the test is repeated with 1 mg. O. T. and again, in the event of a negative outcome, with the injection of two and even five mgs.

The Von Pirquet, or cutaneous test, is the simplest and the most widely used in pediatric practice. It is performed by scarifying the skin, preferably of the flexor surface of the forearm, through a drop of tuberculin; or by rubbing the tuberculin into the previously scarified area.

The Mantoux, or intracutaneous test, which has been steadily gaining in favor in recent years, is performed by the introduction intradermally of one-tenth c. c. of 1 to 10,000 dilution of O. T. equivalent to 1/100 mg. If the reaction is negative the test is repeated one week later, using a 1 to 1,000 solution. The resulting papule depends upon the size of the wheal produced rather than upon the actual concentration of O. T. employed. Thus one-tenth of c. c. of 1 to 10,000 dilution gives almost as pronounced a reaction as one-tenth c. c. of 1 to 1,000; whereas, 1/100 c. c. of 1 to 1,000 produces a much smaller reaction. Hammond and Wolman advise four simultaneous injections each one-twentieth c. c. of 1 to 1,000, 1 to 10,000, 1 to 100,000 dilution and an injection of salt solution to serve as a control.

The Calmette, or conjunctival test, consisting of the instillation of 1 drop of 1 per cent

solution of O. T. into the conjunctival sac has been almost universally discarded because of the potentialities for serious mischief.

The Moro percutaneous test is applied by rubbing a fragment about the size of a pea of tuberculin and lanolin in equal proportions, into a small area of the skin of the abdomen or chest, for a period of one minute.

Interpretation of Reactions

A positive subcutaneous test is characterized by an inflammatory local reaction 1 cm. or more in diameter at the site of injection, with, occasionally lymphangitis and enlargement of the regional glands. To this are added constitutional symptoms which appear within ten to twelve hours, of which fever from 100 to 102 is the most constant and most conspicuous; headache, malaise, nausea and vomiting are not infrequent accompaniments. These manifestations subside in twenty-four to forty-eight hours. At times there may appear in addition, a focal reaction, induced by acute congestion in the vicinity of the tuberculous area.

A positive Von Pirquet and Mantoux test is identified by the development at the seat of injection of a papule at least 5 mm. in diameter and not infrequently attaining a size of 1½ cm. The reaction appears generally in from twenty-four to forty-eight hours and lasts a week or longer. Rarely its appearance is noted in four to six hours or delayed for three to four days. There are no concomitant constitutional symptoms.

A positive Moro is distinguished by efflorescence of tiny papules upon the anointed area.

Comparative Value of the Various Tests

Most observers consider the subcutaneous as the most sensitive of the tuberculin tests, producing as it does, local, focal and constitutional manifestations. It signifies activity as well as infectivity, though this is disputed by many. It remains the method of choice in the diagnosis of suspected bone, joint, skin and gland lesions because of the focal reaction induced. Hamburger obtained 40 per cent more positive reactions

with the subcutaneous method than with the cutaneous. However its use is cumbersome and attended with certain dangers. It is almost never utilized in pediatric practice in the United States.

The Von Pirquet test is preponderantly the method of choice in the hands of pediatricians. It is easily performed, free from danger, and in the opinion of such authorities as Schick, Helmholz, Freeman, Gittings, Hammill, Hamman and Wolman as dependable as any other method, if proper precautions are observed. Patients reacting to the subcutaneous injection of 1/1000 mg. will likewise react to the cutaneous test.

In recent years the Mantoux test has been rapidly gaining in popularity, and has become the method of choice with many pediatricians. At Bellevue Hospital the cutaneous test has been discarded in favor of the intracutaneous method, because the latter yielded 16.8 per cent positives as compared with only 7.8 per cent with the Von Pirquet test. Blanco of Buenos Aires records a similar experience having noted in a very large series, 44 per cent positives with the Von Pirquet and 77 per cent with the Mantoux test. Liggett of the Lymanhurst School is of the opinion, that a negative Von Pirquet must be checked with a Mantoux before the patient can be pronounced insensitive to tuberculin.

The Moro test is appreciably less sensitive than the preceding ones and therefore not used.

Precaution in the Performance of the Tests

If tuberculin is to be accepted as a diagnostic agent, certain precautions in its application must be observed. The potency of the tuberculin is to be ascertained; otherwise a negative outcome is inconclusive. The scarification, when the cutaneous test is applied, must not be too superficial; and the tuberculin must not be wiped off, but is allowed to dry upon the scarified area. When the Von Pirquet test is negative, it should be repeated; or, better still, supplemented, by the intracutaneous test.

Dangers

The cutaneous and intracutaneous tests

are unattended by constitutional symptoms and are free from untoward effects. Rarely, the Mantoux test may be followed by high fever, as recorded by Smith. Occasionally in those endowed with a high degree of hypersensitiveness the reaction may become vesicular or may even undergo sloughing. This I have never witnessed; nor have I encountered lymphangitis, as recorded by some. The subcutaneous test may fan into activity a latent infection, particularly when large doses are employed. Its use is contraindicated in the presence of tuberculous eye or laryngeal affections, and also in advanced heart, kidney and vascular diseases.

Significance of a Positive Reaction

A positive tuberculin reaction signifies that the subject under investigation harbors a tuberculous focus. It does not indicate whether the lesion is active or quiescent. According to Kleinschmidt a positive reaction can furnish no information as to whether the infection is of human or bovine origin. In my own practice I have at no time found a positive bovine without a concurrent human, though the converse does not obtain.

The conclusion is generally, though not invariably justified, that a positive reaction when encountered in a healthy child, denotes a small, healed lesion.

The not uncommon practice on the part of physicians to stigmatize a subnormal or an acutely ill child as tuberculous, because the tuberculin reaction happens to be positive, cannot be too strongly deprecated. Tuberculosis, even if existent, may play a wholly negligible role in the etiology. Manifestations frequently ascribed to tuberculosis, can often be traced to infected tonsils or adenoids, sinus infections, flagrant and repeated disregard of the accepted rules of hygiene, etc. When these latter conditions can with certainty be excluded, then only, does a positive tuberculin reaction assume noteworthy significance.

A positive reaction in a child under two years of age almost certainly means activity. It must not be forgotten that other infections may coexist, and be entirely responsible for a given train of symptoms. The farther ad-

vanced is the child beyond the age of two. the less is the likelihood that a positive reaction represents an active lesion.

In the estimation of some observers, the more intense the reaction the more acute is the infection. This dictum is not universally accepted. Others maintain that the local tuberculin sensitiveness is an index of the capacity of the patient to resist, rather than of the severity of the infection. This is in harmony with my own observation. I have repeatedly found pronounced reactions in the children who are clinically well and who excel their non-reacting comrades in physical development and in endurance.

Tuberculous antibodies are represented as being most abundant during the first few years following infection, during periods of recrudescence, and after reinfections.

Children with exudative diatheses are prone to react more markedly to tuberculin.

The intensity of the reaction diminishes in patients who are growing better, as well as in those whose condition is growing worse.

Rarely, non-tuberculous infections may yield a positive reaction; for example, leprosy and actinomycosis.

Significance of a Negative Reaction

A negative reaction means in an overwhelming majority of cases, absence of tuberculous lesion. Infection may never have supervened, or it may have been completely eradicated.

The belief had been current for many years that hypersensitiveness to tuberculin when once established persists throughout life. More extended experience shows this to be erroneous. Feer, Conquist and others maintain that the cutaneous reaction becomes negative when the tuberculous focus has undergone complete healing. Krause has proven that such a happy consummation is well within the realm of the possible. As far back as 1891, Gardner demonstrated conclusively that a tuberculous lung may heal so completely as to present a normal histological appearance. Harms has shown that this may happen in infants and children. In nine instances out of 66 complete disappearance of fibrosis and calcification

had been noted by him. We have all observed children with a pronounced positive reaction becoming negative in later years. Heimbeck's experience is significant in this connection. He found nurses, medical students and young recruits with only 48 per cent positive reactions, whereas children of approximately nine years of age in the same environment reacted to the extent of 85 per cent.

However, a negative reaction may be witnessed in tuberculous individuals under the following conditions of "anergy." During the incubation period of tuberculosis, in acute tuberculous infections, in the presence of a rapidly progressive lesion, and in advanced pulmonary tuberculosis. It may also become temporarily negative in certain acute non-tuberculous infections, notably in measles; and less often in influenza, lobar pneumonia, and other acute diseases. It is likewise negative when tuberculin therapy had recently been practiced. And lastly, Von Pirquet has met with negative reactions in 2—4 per cent of undoubted tuberculosis, without a discoverable cause.

One negative reaction is not to be considered, even when performed with scrupulous regard for all details, as conclusive. It calls for a repetition of the test. This, when performed a few days later, as recommended by Von Pirquet, Feer, Finkelstein and others not infrequently results in a reversal to a positive. Bass' observations on this phase are illuminating. In over 200 children, one cutaneous test resulted in 3 per cent positives: 2 cutaneous tests, in 7 per cent; and 3 tests in 10 per cent positive reactions. And these when followed by one or more intracutaneous tests raised the proportion of positives to 25 per cent. E. Schloss records a similar experience. However, a child negative to the cutaneous test and positive to a subsequent intra- or subcutaneous, harbors in all probability a latent and not an active lesion.

In children who had never sustained a tuberculous infection, it is impossible to induce a positive reaction no matter how frequently the test is repeated, and irrespective

of the size of the dose of tuberculin employed.

Conclusions

Tuberculin may be regarded as a reliable index to the presence or absence of tuberculous infection.

A positive reaction is to be considered merely as one symptom of tuberculous infection, but not pathognomic of the disease, when other evidences are not corroborative.

The Von Pirquet test, when carefully performed, justly retains its pre-eminence as the method of choice.

The intracutaneous test is regarded by many as capable of yielding a slightly higher percentage of positive reactions.

A single negative reaction is not to be interpreted as tantamount to absence of infection.

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GLIOMA IN THE MOTOR CORTEX SIMULATING GRAND AND PETIT MAL

Report of case three and one-half years after operation.

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Bruns has stated that of cases classed as neurologic, 2 per cent suffer from some form of brain tumor. Blackburn duplicates this with 29 tumors in 1,642 autopsies in insane hospital practice.¹ Many writers submit similar percentages. Because of the tedious nature of the ailment and the oftentimes scant attention given it, brain tumor rarely figures largely in hospital statistics. It is noted that institutions giving this problem special thought report a far larger proportion of proven tumor cases than other hospitals.² We must conclude that many tumor cases annually escape correct diagnosis, with in many cases possibility of help.

Of all brain tumors glioma is variously stated to comprise from 49 per cent to 66 per cent.³ By reason of its customary leisurely progression, the classical general symptoms of brain tumor, those of increased intracranial pressure, appear late, and often not at all. Many gliomata previously quite unsuspected come to light on the autopsy table. Appearing at almost any age, glioma may arise in nervous tissue wherever situate, but the majority of course occur within the skull with an apparent predilection for the white

matter of the centrum ovale and to a less degree in the brain stem.⁴ It however may arise in any part of the brain. In its classic form it occurs as a solitary, diffuse, variably vascular infiltrating tumor arising from gliar structure or more rarely from ependymal cells.⁵

It is of slow growth and subject to remission, though not to regression, its blood vessels are thin walled and often scarce, and as the tumor grows it is prone to cystic degeneration or to internal hemorrhage. Being composed of the inert component of the brain and extending so gradually, glioma often attains a relatively large size before contiguous nervous structures are sufficiently damaged to show clinically recognizable symptoms. These symptoms, proper to the locality invaded, gradually arise, or may suddenly appear following an apoplectic attack caused by the rupture of a blood vessel in the tumor with hemorrhage and the attendant increase of intra cranial pressure. Apoplectic attacks in patients showing no hypertension, vascular degeneration or suggestive cardio renal-symptoms should suggest the possibility of a degener-

ation of a previously unsuspected tumor. Signs of increased pressure are confirmatory and the later appearance of localizing phenomena goes far to clinch the diagnosis. These localizing signs may however be too ambiguous to be of value or be quite absent. Well considered ventriculography may assist in obscure cases.

Because of its morphologic characteristics glioma is considered unfavorable for surgical intervention except for frank palliation. Disturbance of the growth by incision may expedite extension or promote degenerative changes.

In the group of the convulsive disorders, there is unquestionably a number of cases of neoplastic etiology, how many we do not know, but certainly more than was thought ten years ago. In this connection, and especially in psychiatric practice we must remember that not infrequently tumor first manifests itself by emotional or other psychic changes.

What may be the duration of glioma in vivo is of course unknown, but the history cited below strongly argues the probability of at least eight years duration before diagnosis three and a half years ago, and the individual is alive and fairly well today. This case points a well known though frequently ignored moral; i. e., the necessity of skilled observation of actual seizures before opinion is given. Between the ages of 14 and 22 this boy consulted a large number of physicians, none of whom saw an attack. They all made a provisional or presumptive diagnosis of idiopathic epilepsy and instituted variants of the classical treatment, diets, catharsis, bromides and luminal. They did this on the history furnished by the parents and description of seizures given by the same informants. The boy was never benefited.

Through a good fortune denied other observers the author saw two major and three minor attacks in the consultation room. The onset of the major attacks was definitely focal, though rapidly diffused, and the petit attacks had the added element of post-seizure transient aphasia. (Vide infra.) Diagnosis of neoplasm in the left post cen-

tral convolution was made and confirmed at operation. Three and one-half years later he is at his customary vocation with less disability than for years before operation despite the laboratory diagnosis of glioma.

CASE REPORT

L. B. E., a white, unmarried male of 22 years, was referred by Dr. J. N. Hall, Sept. 26, 1924, with a history of eight years epileptiform attacks.

The history was given by patient's father, patient being quite stuporous.

Family History is entirely negative for all neuro-psychiatric disorders and for constitutional disease. Father, mother and one older brother are living and very well. There are no children dead and there have been no miscarriages.

Previous Medical History: Patient is the third child, the product of a normal pregnancy and an easy labor. He was breast fed, walked and talked at the usual age. His school history was uneventful. He was considered a bright, normal boy till the age of 14 years, save that he had had from infancy at intervals some vague "stomach trouble." He had the usual diseases of childhood but no disabling or cranial injuries. Influenza in 1920, no sequellae. Operated in 1923 for chronic appendicitis. This has largely relieved the stomach trouble. Has always had "a tendency to constipation."

Present Illness began during puberty at the age of 14, when without apparent cause he began to have generalized convulsive attacks with unconsciousness. For the first three years attacks came only every three to six months, but for the past few years with increasing frequency, lately as often as five or six per week, usually occurring in pairs. They come indifferently, day or night. There has never been an aura. The tongue is nearly always bitten and frequently urine is voided. He has a classic post-seizure irritability and stupor for about a day following attack.

For the past two years petit mal attacks have been added to the picture. During the last three months as many as ten have been observed in a single day and every day there is at least one. The father says that there are no premonitory signs. Unless the patient is talking, the attack may pass unnoticed. The attack seems to be limited to an interruption of speech which is succeeded by a period of motor aphasia after some thirty seconds silence. Enunciation is then thickened and words are misplaced and misused. Patient himself later states that he realizes the situation at the time, but is powerless to correct it. These attacks do not stop the flow of ideation, merely interrupt it. He complains of headache or nausea only immediately after major attacks. Vision, memory and orientation are normal. There is no delusional formation or hallucinatory constellation. Emotionally he is said to be stable and cheerful.

For the two years last past he has taken luminal irregularly in varying dosage. "Enough" is said to avert major attacks, but to have no effect on petit attacks. For the seven days last past it appears that he has taken six tablets (nine grains) daily. This is thought to account for his present stupor and it is advised that he return when this has been eliminated.

Oct. 16, 1924, he returned quite clear mentally and was examined with meagre positive findings. His forehead and tongue are badly scarred as seen in confirmed epileptics. Heart, lungs and abdominal viscera are negative. Urine negative. Blood and spinal fluid Wassermann negative.

Blood pressure 120-90 mm. Pulse 84 and regular. Careful neurologic examination shows only the following positive findings. Grip: right, 90; left, 100 (right handed, moderately ambidextrous). There is a slight but definite haziness of both optic discs. No diplopia, hemianopsia or nystagmus.

Not wishing to remain in hospital for observation he was permitted to return home, his father being instructed carefully in the observation of seizures for possible focal manifestations, in view of the transient aphasia this being suspected.

He returned Nov. 1, 1924, for re-examination with the following history: He had had on Oct. 22 twenty observed petit mal attacks, followed by more than the usual amount of aphasia. Three days later he had within four hours seven major attacks of unprecedented severity. No localization of inception was observed by family. For several days following the major attacks he thought he saw constantly and hazily some unrecognized man standing at the extreme right edge of the visual field. This was gone at time of examination. Since this series of attacks he has been more stupid, complains of constant subjective dizziness, has occasional nausea without vomiting and has a constant sharp trans-frontal headache. He admits no diplopia or amblyopia.

Examination this date discloses no distortion of olfaction, but a suspicion of right hemianopsia; i. e., vision to that side was not clear, and he showed an obliteration of the margin of the upper nasal quadrant of both optic discs. Right side deep reflexes were much exaggerated. At this point examination was stopped by occurrence of three rapidly successive petit mal attacks without physical apparent changes. Confused speech followed these. Visual and auditory perception seemed normal but spoken language was almost gibberish for four minutes and written language was impaired for fifteen. Patient afterward said that he understood commands given during that period perfectly. (See Figure 1.) Patient appeared exhausted after these attacks and was taken home.

Nov. 6, 1925, patient was seen with a flaccid right hemiplegia which had come on during the previous night following a convulsive attack. He was unable to stand or to walk. Speech and understanding were fairly good. In addition to the hemiplegia he now showed a slight left ptosis and choking of both optic discs, right 2 diopters, left 3 diopters. He had a definite right hemianopsia and a general failure of visual acuity. No nystagmus.

While seated in a chair with examiner looking at him he had a convulsive attack which father said was identical with previous ones so far as he could see. Twenty minutes later he had a second attack identical with the first. These attacks were initiated with a clonic contracture of the right arm with four or five "pill-rolling movements" of the thumb and forefinger. The contracture spread rapidly through the right side and within probably twenty seconds had involved the whole body. With the exception of the thumb and finger movements the whole picture was that of idiopathic epilepsy even to the stertor, tongue biting, incontinence and after stupor. The kinetic phase of these attacks lasted not over four minutes.

The diagnosis of neoplasm involving primarily the hand center of the left motor area was made and the patient hospitalized at St. Joseph's Hospital for operation which was done under ether anesthesia Nov. 8 by Dr. H. R. McGraw.

A circular opening one and a quarter inches in diameter was made in the usual manner over the middle of the left motor area. The dura was tense

*I think I am in
Colo. I do not ~~am~~
think am in sick.*

Dictated: I am in Colorado. I think I am sick.

Date: November 6, 1924

Handwriting from oral dictation ten minutes after petitmal attack.

and bulging, dark and without pulsation. When it was cautiously opened hemorrhagic brain substance under great pressure exuded rapidly and broke into a dark red cauliflower like mass, filling the bony opening. In order to determine the extent of the lesion, the bony opening was enlarged one-fourth inch all around and more or less healthy brain tissue appeared all around the periphery, giving the growth a superficial area of approximately one and one-half inches. Superficially the mass centered as was anticipated in the middle of the left post-central convolution, though it extended in all directions from there. The center of the tumor was hemorrhagic and almost diffuent. This deteriorated portion of the tumor was removed by sponging and careful blunt dissection to the amount of 20 c. c. A specimen of tumor margin was sent to the laboratory for microscopic study. The tumor was seen to be recimose and unencapsulated and had the gross appearance of a glioma, a diagnosis subsequently fully confirmed by the laboratory. The tumor appeared to extend into the subcortical white matter, but this was not explored. The wound was closed with drainage and aside from a series of terrific convulsions the first night which threatened the patient's early exitus, he made an uneventful surgical recovery without further convulsions or inconvenience.

He left the hospital three weeks later and reported from time to time that he felt fine, had gained weight, had no spells and was at work again.

Sept. 3, 1925, he returned, stating that for the week last past he had not felt good as to his stomach and had had one convulsion and one minor attack. It appeared that he had been eating injudiciously and that both attacks followed an arduous day spent in climbing Long's Peak. He was dismissed with dietary instructions and a lecture on over exertion.

Nothing further was heard from him till he appeared on March 30, 1926, stating that his spells did not recur after he paid attention to his diet. He said that he had spent the winter in California working in a stationery store, and had done well, though he had lost fifteen pounds, till the first of February. Since then he had been having at least one petit attack per day, had had a good deal of trouble with his stomach, and was "very nervous."

Examination showed no neurologic difficulties, the operative wound was depressed and not tender. Gastric analysis showed a marked hyperacidity. He was treated for this acidity and told to rest and sleep. He returned a month later to say that the petit attacks had disappeared and that he felt well and had gone to work.

Aug. 25, 1926, his father brought him to the office stating that for three weeks the boy had

been listless and indifferent, eating and sleeping poorly. For two weeks he had averaged a convulsive attack per day, the post-seizure stupor seemed longer and irritability was more marked than at any time in the past. Examination showed no localizing neurologic defects but there was a general hypertonus and reflex irritability. The site of the old operation was bulging and very tender. Patient said that pressure on it made him "feel like a spell was coming on," but could not further elucidate.

In view of the local manifestations exploratory operation was advised and accepted. This was suggested with the idea that the glioma had regenerated or that there were adhesions subdurally. He was re-operated by Dr. McGraw, Aug. 31. The old incision was re-opened and a classic cortical glioma was visualized, occupying and destroying the superficial topography of the original site. This tumor was fully as large as the original one but not hemorrhagic, and was firmly adherent to the dura. Feeling that the situation was unfavorable as things stood, as much of the tumor mass was excised as could be without infringing on normal tissue. There was very little bleeding. The wound was then closed. Patient made an uneventful recovery without seizures. He was later reported to have been emotionally depressed and unstable for several weeks, but recovered his stability nicely.

Oct. 27, 1927, patient reported that he had been continuously in good health since last operation, except for a petit mal attack every several weeks, which did not disturb him any. He showed no more organic findings than for several previous examinations. He wished to go to California and was allowed to go. In January, 1928, without known cause or apparent reason he developed a series of convulsive attacks of great severity and frequency, a dozen or more in a week. He was not seen by the author in these, but the family says that there were no localizing features (sic!)

and that he was "just generally weak." His local medical attendant advised operative intervention, but the parents demurred. After a week or so he gradually cleared up completely and reported in Denver in May the apparent picture of health. Said that he had had no trouble since the January episode, felt fine except that he tired easily and he proposed to go to work in a mountain resort store for the summer, which he is now doing.

Conclusions

This case universally diagnosed idiopathic epilepsy was in fact organic epilepsy. Attacks ceased when organic condition was relieved.

Diagnosis was apparent on proper observation.

The long duration of symptoms due apparently to tumor, without more extensive damage is enlightening.

The duration, three and one-half years following operative diagnosis and partial removal is informative when considered with the marvellously small amount of residual damage such a growth inflicted.

REFERENCES

- ¹H. Cushing *Osler's Mod. Med.*, Vol. V, pp. 308-9, 2nd ed.
- ²*Ibid.*
- ³*Ibid.*
- ⁴Buzzard and Greenfield *Pathol. Nervous Syst.* 1925, pp. 240.
- ⁵*Ibid.*

THE TRUDEAU MEDAL OF THE NATIONAL TUBERCULOSIS ASSOCIATION AND SIR ROBERT WILLIAM PHILIP OF EDINBURGH

H. J. CORPER, M.D., Ph.D.

Research Department, National Jewish Hospital at Denver, Colorado.

The Trudeau medal award of the National Tuberculosis Association commemorates the honored name of the great humanitarian and investigator, Dr. Edward L. Trudeau, one of the outstanding and foremost enemies of disease. Science is built on sacrifice and the highest reward that can be paid to man is the appreciation and respect of his colleagues. Thus it is that the Trudeau medal assumes mammoth proportions dedicated by the National Tuberculosis Association as a tribute for the most meritorious contribution on the cause, prevention or treatment of tuberculosis.

Pursuant to a resolution adopted by the National Tuberculosis Association¹ on Jan. 24, 1925, a committee of seven prominent

investigators was appointed by the President of the Association and the first award of the medal was made by Dr. E. R. Baldwin,² chairman of the committee, at the twenty-second annual meeting of the Association at Washington, D. C., in October, 1926, to Dr. Theobald Smith, head of the Department of Animal Industry of the Rockefeller Institute for Medical Research, "not only for his studies in bacteriology and pathology of tuberculosis which resulted in the demonstration of the difference between the human and bovine type of tubercle bacilli, but also for his painstaking and accurate studies on their variations in virulence, their possibilities of danger to man, and their relation to immunity. He devised

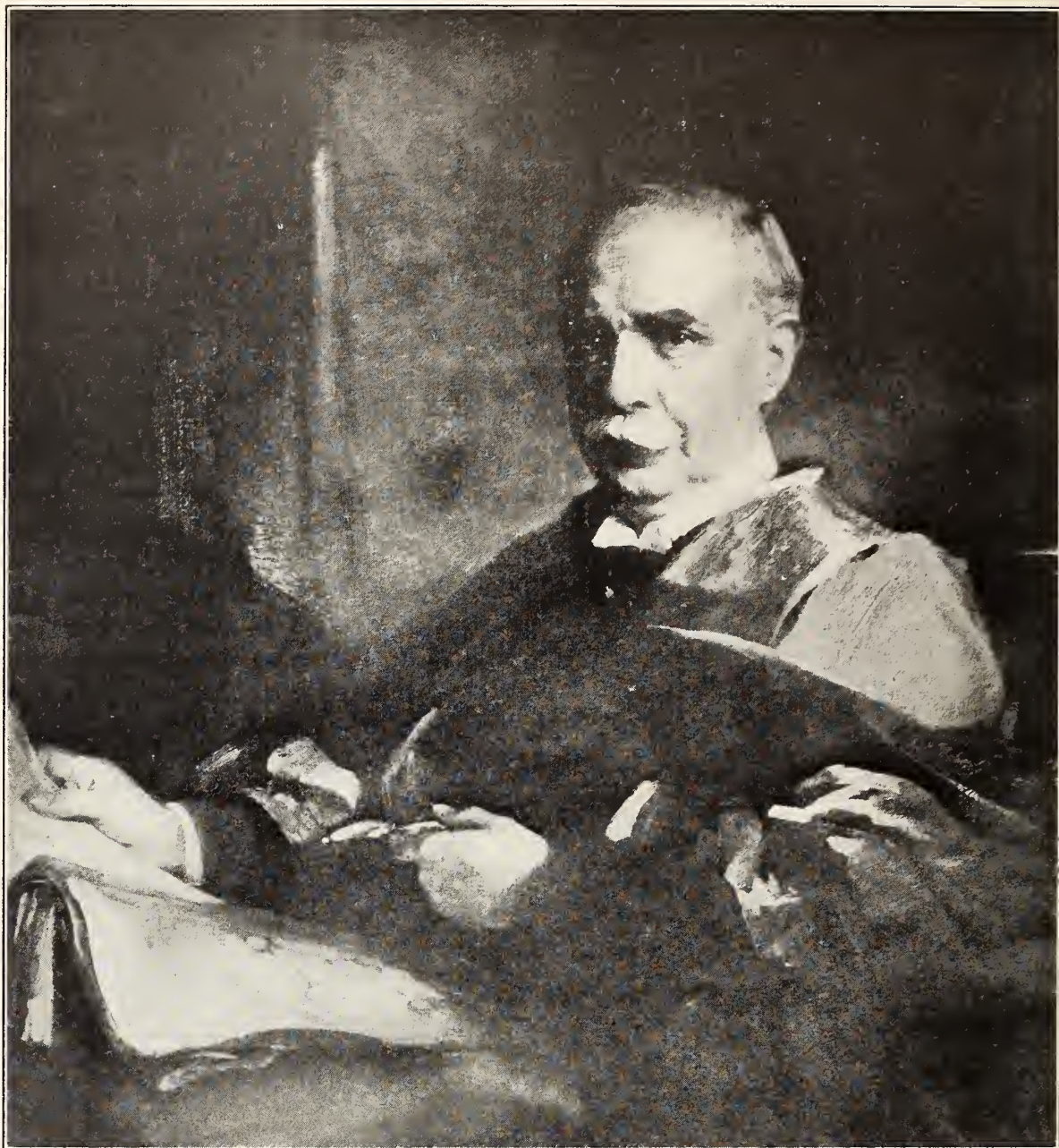


Fig. 1. Painting of Sir Robert William Philip, M.D., LL.D., of Edinburgh, Scotland, Examining the "Edinburgh Plan."

methods for their differentiation by culture and added valuable knowledge to the biology and parasitic relationships of tubercle bacilli to animals and man. His contributions have been numerous during the past thirty years, during which time he set a high standard for workers in laboratories. His accurate observations in connection with the effect of the injection of serum on animals laid the foundation for the study of hypersensitiveness or anaphylaxis. Thus, indirectly, the better understanding of the symptoms of tuberculosis, and of the effect of tuberculin has been made possible.'''*

At the twenty-third annual meeting of the National Tuberculosis Association at Indianapolis the second award of the Trudeau medal was made by Dr. Theobald Smith, chairman of the committee† appointed by the President, Dr. Henry Sewall, of the National Tuberculosis Association, to Dr. Edward R. Baldwin of Saranac Lake.

In making the presentation‡ Dr. Smith pointed out "The recipient of the medal, Dr. E. R. Baldwin of Saranac Lake, has been active not only in research bearing upon fundamental facts in tuberculosis, but active also in correcting errors in research and re-

EDINBURGH PLAN FOR COMBATING TUBERCULOSIS.

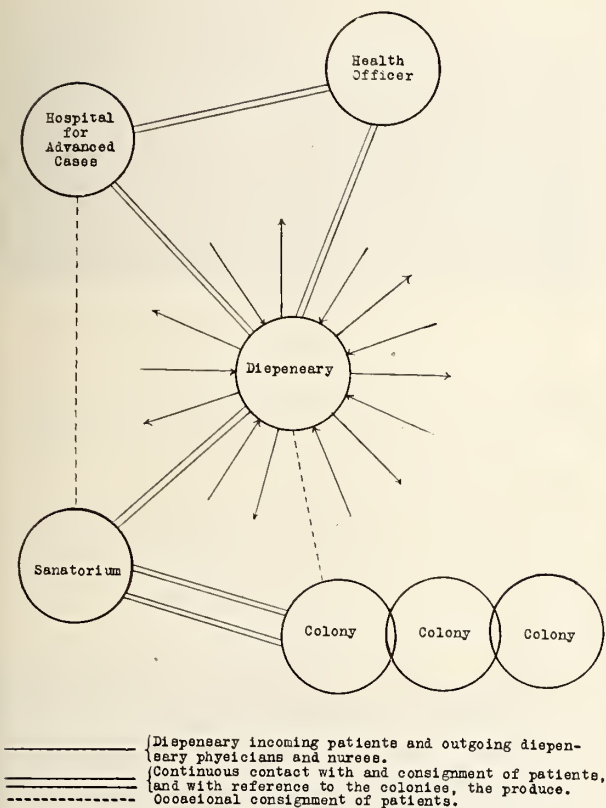


Fig. 2. Details of Edinburgh Plan for Combating Tuberculosis.

examining the results of research which might have been of great danger to the cause of tuberculosis prevention. He has applied the principles of research in his practice as a physician and clinician. It is hardly necessary to recount the many important papers which have been published by Dr. Baldwin. He began in the early nineties with Dr. Trudeau to investigate the many problems of tuberculosis which arose as a result of the discovery of the tubercle bacillus and also the discovery of the peculiar action of tuberculin. His problems were

to seek a greater and more precise knowledge of the tubercle itself; next came the problem of the tuberculin reaction; then the problems of reinfection and superinfection and in all of these, Dr. Baldwin has contributed important data. He has also unselfishly gone over the work of others wherever there was any indication that the results published were in error and needed to be rectified."



Fig. 4. Initial Visit of the Dispensary Nurse in an Infected Home.

The Trudeau medal bears the name of Dr. Edward L. Trudeau and it commemorates in a sense the life and work of the genius whose influence has stimulated the development of the National Tuberculosis Association. Trudeau was a research man. He was not only this but also a great humanitarian and philanthropist and active in bringing the fruits of research into practice. The witness to this endeavor of his is the great medical institution which bears his name at Saranac Lake and as a fitting tribute the following resolution was made at a meeting of the executive committee of the National Tuberculosis Association in 1926; "Resolved, That the board of directors here-



Fig. 3. The Victoria Dispensary; Canvass of the Home to Find the Early Case.



Fig. 5. Tuberculous Home Under the Guidance of the Dispensary Nurse.



Fig. 6. Queen Victoria Hospital; Inside of Pavilion.

by approves the plan of the committee on medical research for the awarding of a gold medal not oftener than once a year to that individual who in the judgment of the Association has made the most meritorious contribution on the cause, prevention or treatment of tuberculosis; the medal to be known as the Trudeau Medal of the National Tuberculosis Association and when awarded, the name of the recipient to be announced at the annual meeting of the Association." The Trudeau medal was designed by the well known artist, Mr. Theodore Spicer-Simon, and bears on one side an excellent likeness of Dr. Trudeau which stands out in bold relief and shows the thoughtful and serious mind intent on some mental problem. The reverse of the medal symbolizes the tree of knowledge and the use of test tubes and animals in experimental work on tuberculosis.

As members of the 1928 Trudeau medal award committee the respected President, Dr. H. Longstreet Taylor, of the National Tuberculosis Association, appointed Dr. Theobald Smith, chairman; Dr. Charles J. Hatfield, Philadelphia, Pa.; Dr. H. J. Corper, Denver, Colo.; Dr. Esmond R. Long, Chicago, Ill.; Dr. Edward R. Baldwin, Sara-



Fig. 8. Regulated Walking and Breathing Exercises.

nac Lake, N. Y.; and Dr. Hans Zinsser, Boston, Mass., to make the third annual award of the gold medal.

In making the presentation address at the twenty-fourth annual meeting of the National Tuberculosis Association in June, 1928, Dr. H. J. Corper introduced the recipient of the third Trudeau medal with the following: "In making the award this year the Trudeau medal award committee has found the merit to lie among our neighbors across the sea. There was born and brought to fruition, in one of far vision, a system so complete and far reaching that it has cast an everlasting influence upon the welfare and happiness of mankind. As an investigator and organizer he has contributed largely to the sum total of our worldly knowledge of tuberculosis. He is an outstanding dean of preventive medicine. Unlike the proverbial prophet, he has not lacked home appreciation. Sir Robert William Philip, M.D., LL.D., the recipient of the 1928 Trudeau medal award, is honorary physician to the King of Scotland, was President of the Royal College of Physicians, President of the British Medical Asso-



Fig. 7. Open Sheds Arranged for Night Use.



Fig. 9. Graduated Labor; Patients Emptying Rubbish Containers.



Fig. 10. Graduated Labor; Patients Do Light Work With Spades.

ciation, President of the Tuberculosis Society of Scotland, Honorary President of the Tuberculosis Society of Britain, and President of the International Union Against Tuberculosis in London in 1921. In 1887 Sir Robert Philip founded the first tuberculosis dispensary, and was chiefly responsible for



Fig. 11. Graduated Labor; Patients Fell Trees. the establishment of the Royal Victoria Hospital for Consumption and the Farm Colony at Edinburgh, a part of the coordinated scheme or 'Edinburgh Plan' which has been adopted as a national system for the administration of the campaign against tuberculosis. In the University of Edinburgh he was appointed in 1918 to the first chair



Fig. 12. Graduated Labor; Patients Build a Road.



Fig. 13. The Colony on the Farm. "Colonists" Mow and Bind.

of tuberculosis which had been created in the world."

Thus was done honor to a great man and a great pioneer in the field of tuberculosis control.⁴ Within less than five years after the announcement of Koch's discovery of tubercle bacilli, Sir Robert Philip estab-



Fig. 14. The Colony on the Farm. "Colonists" Hoe Potatoes.

lished the first tuberculosis clinic in the world. Since that time his magnetic personality and his genius for organization have drawn to him in close personal friendship one of the most loyal group of disciples that any teacher of the present day can call his own. A few years ago, in his memory, this



Fig. 15. Queen Victoria Hospital; Open-air School.



Fig. 16. Fresh Air School; Breathing Exercises.

group published a notable volume, "The Control and Eradication of Tuberculosis."

Sir Robert Philip is an exemplary product of Scotch and British culture born in Edinburgh in 1859 and educated in the Royal High School of his native city, and also in the University of Edinburgh. He stands for those high ideals that made his confrere, Sir William Osler, famous. While we in America have not exactly borrowed from the Edinburgh scheme our city and county tubercu-

losis organizations owe some of their best qualities to his work.

In order to fully appreciate the appended illustrations depicting Sir Robert Philip's "Edinburgh Plan," it is well to transpose oneself for the moment to the atmosphere of the period of the eighties and nineties when this monumental work was being initiated.

¹Transactions of the Twenty-second Annual Meeting of the National Tuberculosis Association, 1926, pp. 64 and 65.

²Transactions of the Twenty-third Annual Meeting of the National Tuberculosis Association, 1927, p. 55.

*The Trudeau Medal Award Committee of 1926 consisted of Dr. E. R. Baldwin, chairman; Dr. Charles J. Hatfield, Dr. Haven Emerson, Dr. F. Cleaveland Floyd, Dr. Gerald B. Webb, Dr. G. W. McCoy and Dr. Hans Zinsser.

†The Trudeau Medal Award Committee of 1927 consisted of Dr. Theobald Smith, Chairman; Dr. Lawrason Brown, Dr. H. J. Corper, Dr. Haven Emerson, Dr. Charles J. Hatfield, Dr. Esmond R. Long.

³Transactions of the Twenty-third Annual Meeting of the National Tuberculosis Association, 1927, pp. 13 and 14.

⁴P. P. Jacobs, *Journal of Outdoor Life*, 1928, Vol. 25, p. 390.

CANCER OF THE UTERUS

M. WEINER, M.D.,

DENVER

Cancer of the uterus differs as to malignancy, operability, and prognosis according to the location in the uterus. There are three locations considered for practical purposes: Cancer of the body, cancer of the portion, or isthmus; and cancer of the lips of the cervix.

Etiology

The etiology is unknown, infection is not a probable factor, an abnormal biochemical reaction is a probable factor. Cancer of the cervix is more frequent, the more children a woman has had. It is not common in cases of prolapse only, hence irritation is not the only factor. Cancer of the body occurs more in nullipara, and in later life; fifty to sixty years of age. Normal tissue is physiologically mature and histologically mature. A benign tumor is histologically mature, but physiologically immature. Myoma of the uterus has a resultant force of zero, while the normal muscle of the uterus has a resultant force in the direction of the cervix. As observed in Caesarian section, a myoma does not contract. Malignant tumors are

physiologically immature, and histologically immature. Wassermann found that each cell contains genoceptors in the nuclei, and nutriceptors in the protoplasm. If these two are of the proper proportion, a normal propagation takes place, if there is a dysproportion, a tumor proliferation takes place. Metaplasia, that is the transformation of a normal cell into a tumor cell, is an old theory and not believed now. Nor does a benign tumor degenerate into a malignant tumor. A malignant tumor represents a regenerative, not a degenerative process. Malignant tumors probably arise from embryonic cells always present in all tissues of the body. Embryonic foetal-mice ground in mortars, and injected into adult mice; along with arsenical salts, produced tumors in the adult mice.

If the cells proliferate only, that is they are extremely embryonic, the tumor will proliferate faster, than one, which besides proliferating, will at the same time differentiate histologically. Hence the less histologically differentiated a tumor is, the more

malignant it is. That is also the reason why the x-ray and radium have such marked effect on some tumors, and not on others. The x-ray men in Europe are now taking a microscopic section before applying radiation. If the tumor is too histologically immature, or too embryonic, they will not radiate it. A definite incubation period exists for cells devitalized by x-ray or radium, when these proliferate so fast, that is faster than the necessary intervals allowed between radiation, radiation is useless.

Symptoms

Pain is a late symptom; it means cancer infiltration of the parametrium, and the pelvic walls, catching the nerves. Bleeding on coitus, or on exertion, is an important symptom; this is more frequent in cancer of the cervix because the cervix is more easily compressed against the vagina. Sanguineous discharge is also an important symptom. Foul discharge may be due to cancer or a necrotic fibroid. If the tissue is so friable that it can be broken up with the finger, it is pathognomonic of cancer. Bleeding that starts some time after the climacteric is more apt to be due to cancer than fibroids. A profuse leukorrhea at, or after the menopause may be the first symptom of cancer. "Krohback Symptom," is the bleeding produced when the interior of the cervix is scratched with a fine probe, depends upon the friability of cancer, even in the beginning. Tuberculosis and syphilis imitate cancer, but the friability is certainly marked in cancer. Repair of a lacerated cervix is the best prophylaxis of cancer.

Cancer of the body is the least malignant because the wall of the uterus is thick, and offers a lot of resistance to infiltration. It is detected fairly early, because the bleeding in these cases is at such an age, when the patients come to the doctor for it quickly, the uterus, in most cases, is not very much enlarged, and is easily operated on. Cancer of the lip is more malignant, but it is still diagnosed early because of the constant hemorrhage provoked, it infiltrates late, but operation is more difficult than in cancer of the body. Cancer of the portion, or isthmus, is the most malignant, because it does not

bleed easily, the cervical wall in that region is not thick, and offers little resistance to infiltration, it infiltrates along the uterine artery which enters the uterus in this location, and it infiltrates the parametrium very quickly.

Diagnosis

Round cell infiltration is a method of defense of the organism, if enough lymphocytis could accumulate, it would spontaneously stop the cancer. Solid cancer usually develops from stratified epithelium, with glandular cancer from mucus membrane. Solid cancer may develop in the cavity of the cervix, and glandular cancer at the lip. Secondary solid cancer may develop in the body, which was primary glandular. To be diagnosed malignant the specimen must show ¹atypical shape of cells, ²atypical arrangement of cells, and ³invasion. If any one condition is missing, it is not malignant.

Metastasis

Generally speaking, there are four stations of glands, where metastasis takes place. The first is the parametrium which contains quite a few glands of the cervix and vagina, but not many of the body. The second station is at the promontory of the sacrum, the third station is the chain of intermesenteric glands, and the fourth station is the coeliac glands. Professor Schauta made 1,200 sections in sixty cases of cancer and came to the following conclusions: any station may be invaded first, irrespective of the distance from the growth; second, enormously large and firm glands may be inflammatory, especially tuberculous, while small glands may contain cancer.

A cancer of the cervix rarely grows to the body of the uterus, but a cancer of the body may grow to the cervix, and become as malignant as one originally of the cervix. A small uterus may be full of cancer. Invasion of the lymph glands in cancer of the uterus is not as marked as in other parts of the body as the tongue, breasts, etc. The ureter is quite free from invasion, even though imbedded in cancerous tissue. The normal ureter shows peristalsis when handled between the fingers; an invaded ureter does not. Invasion of the rectum is quite high,

it may be twenty to thirty centimeters from the anus, and cannot be felt by the fingers, but must be examined with a proctoscope. In bladder invasion, it produces edema bullousum, which in the cystoscope, looks like a bunch of grapes, it is a cystic distention of the lymph vessels.

Treatment

The first choice is operation followed by x-ray radiation, and possibly radium radiation of fifty milligrams radium in the lateral angles of the parametrical wounds for five hours, immediately following operation, in the Schauta, or vaginal route.

In inoperable cases radium is used first, followed up by x-ray. In all cases of metrorrhagia or menorrhagia, a diagnostic curettage should be done first to rule out cancer before radiation is applied. Often curettment in inoperable cases before radiation, removes the odor, and the large amount of discharge, but this must be done very carefully, not to go too far into the friable tissue, and produce a fatal hemorrhage by opening up the main arteries.

The x-ray follow up treatment should not start until the bladder has recuperated fully from the operation, usually in about three or four weeks. The follow-up treatment is best given at least fifty centimeters from the body, alternating exposures from the back and the front.

In using the radium treatment along with the operation, it was found that if fifty milligrams were used for twelve hours, good results were obtained, but fistulas were found in 20 per cent of the cases. If used only for five hours, no fistulas were found, but poor results were obtained; if used for five hours in the lateral angles as mentioned above, good results were obtained and no fistulas. The amount of milligram hours used in operable or inoperable cases without operation will not be discussed in this paper.

Inoperable Cases

Cases are inoperable if there is:

1. Metastasis to pelvic wall (felt best by rectal examination).
2. Infiltration on uterine wall past Magenrodt's ligament. (One finger in rectum, one hand on abdomen, if fingers cannot meet

above the parametrium as they do normally.)

3. Infiltration of bladder.
4. Infiltration of rectum.
5. Extensive infiltration of vagina.
6. If inguinal glands are involved, and are palpable in cases of cancer of the body

Rare Cases of Cancer

1. Sarcoma of cervix, usually in children.
2. Cancer associated with pregnancy. Percentage is three-hundredths per cent.

There is an absolute cure in 31 per cent without radiation, because the patients have bleeding, when there should be none. In last half of pregnancy, none are saved, because of the enlarged lymph and blood vessels, and the rapid propagation of cancer. The indication for treatment is clear. If inoperable, and it is near term, one waits to the end of the term to save the child; if operable and the child is viable, a Caesarian, and hysterectomy is done; if operable, and the child is not viable, hysterectomy, "in toto," is done. If inoperable and child is not viable, radiation is done. In early pregnancy, an immediate operation is done.

3. Cancer in stump of cervix is rather rare, about one case in two hundred of cancer. These are usually seen early for reason mentioned above. Absolute cures are accomplished in 60 per cent of the cases.

Statistics

The incidence of cancer in Europe is much higher than in America. Of all gynecological cases seen, cancer of the cervix appears in one case out of one hundred; cancer of the body, one out of every eight hundred. The relative operability of all patients seen with cancer of the uterus, is 50 per cent. In cancer of the body alone the relative operability is 71 per cent. The relative number of cures, that is of all patients operated on, is 50 per cent. This high percentage exists because the absolute cures in body cancer (patients well after five years of all cases seen with body cancer) is 40 per cent. The absolute cures, cures of all cases of cancer seen, whether operated on or not, and irrespective of the location of the cancer, is 26 per cent without radiation following operation. With radiation following, the abso-

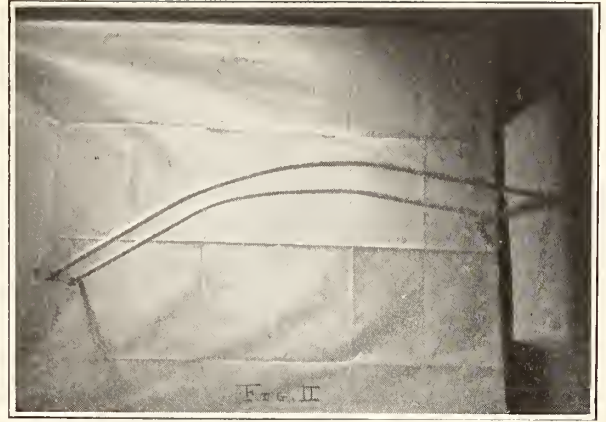
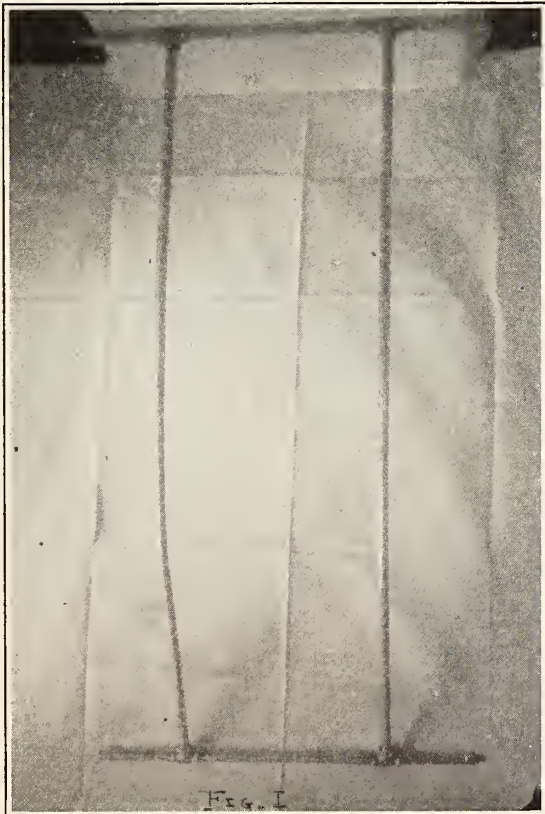
lute cures is 31 per cent. Radiation alone gives absolute cures in 20 per cent; in inoperable cases, 10 per cent.

These statistics are only with the Schauta (radical vaginal route) operation. The Wertheim operation (abdominal) is somewhat lower because of the larger immediate mortality; there is a slightly higher number of absolute cures. Franz, in Germany, has 2 per cent higher absolute cures, but his patients are of a more intelligent character, and come to operation earlier. The primary operative mortality in the vaginal route is about 4 per cent, in the abdominal route, about 9 to 10 per cent.

ALTERATION OF BRADFORD FRAME

Robert G. Packard and Hamilton I. Barnard
DENVER

Occasionally in the use of a Bradford Frame, where considerable hyperextension is desired, one is confronted with an obstreperous child who persists in squirming and rocking to such an extent that the frame and contents are in danger of being turned over. Consequently either constant attend-



ance on the part of the nurse or proper restraining apparatus is necessary.

The simple alteration as shown in Figs. 1 and 11 is offered to stabilize the frame. As the photographs show, a piece of pipe from four to eight inches long is added to each corner of the frame. They project out parallel to the plane of the frame, and perpendicular to the side bars of the frame. By using a T-joint on the corners instead of an L-joint, it is a simple matter to attach and remove these extra pieces. The outer ends are rounded off so as to eliminate unnecessary wear to the bed.

NEWS NOTES

Dr. W. H. Halley and family have returned from an automobile tour through certain sections of Colorado, Utah and Wyoming.

Dr. George B. Packard has returned from a vacation and clinical trip in the East.

Invention Exhibit Announcement

Colorado physicians having invented or perfected any instrument or office equipment and are desirous of placing same in the exhibit of the State Society at its annual meeting in Colorado Springs are requested to get in touch with Dr. William A. Sedwick who is in charge of this exhibit.

X-ray Exhibit Announcement

Members having interesting films that they are desirous of placing in the film exhibit of the State Society at its annual meeting in Colorado Springs and who have not already agreed to contribute such films are requested to notify Dr. W. W. Wasson of Denver stating the number of films they will furnish.

Hotel rates for the annual session of the Colorado State Medical Society at Colorado Springs, September 11th, 12th and 13th:

Antlers Hotel

Double rooms, without private bath, \$6.00 per day.

Double rooms, with private bath, \$8.00 per day.

Acacia Hotel

Single rooms, without private bath, \$2.50 per day.

Double rooms, without private bath, \$4.00 per day.

Double rooms with twin beds, \$5.00 per day.

Single rooms, with private bath, \$4.00 per day.

Double rooms, with private bath, \$6.00 per day.

Double with twin beds and bath, \$7.00 per day.

Broadmoor Hotel

Single rooms, with private baths, \$10.00 to \$20.00 per day.

Double rooms, with private baths, \$18.00 to \$25.00 per day.

GOLF ANNOUNCEMENT

On the afternoon of Wednesday, September 12th, will be held the annual golf tournament of the State Society at the Patty Jewett Field. A luncheon will be served at the Jewett club house at 1 o'clock. It is desired that as many golfers as possible attend this luncheon, not only for a social hour but that the tournament may start promptly at 2 o'clock, giving the last starters ample time to finish the eighteen holes before dark. It is hoped that all members who play golf will enter this tournament.

MEETING OF THE AMERICAN COLLEGE OF SURGEONS

The American College of Surgeons will hold the Eighteenth Clinical Congress in Boston, October 8-12. Headquarters will be at the Statler Hotel and meetings will be held in the ballroom of the Copley-Plaza Hotel and Symphony Hall. The Hospital Standardization Conference will be held in morning and afternoon sessions in the ballroom of the Copley-Plaza Hotel, Monday, Tuesday, Wednesday and Thursday. An innovation this year will be the commencement of the clinics in the Boston hospitals on Monday afternoon, continuing through the mornings and afternoons of the following four days. Monday evening's program will include an address of welcome by the local chairman, the address of the retiring president, Dr. George David Stewart, New York, the inaugural address of the new president, Dr. Franklin H. Martin, Chicago, and the John B. Murphy oration on surgery by Professor Vittorio Putti of Bologna, Italy. Tuesday, Wednesday and Thursday evenings' sessions will be held in the ballroom of the Copley-Plaza Hotel. At the Wednesday evening meeting the visiting surgeons will be the guests of the Boston Surgical Society at a special meeting when the Bigelow medal is to be awarded. On Friday evening the annual convocation of the college will be held in Symphony Hall when the 1928 class of candidates for fellowship in the college will be received. The fellowship address on this evening will be delivered by Dr. William J. Mayo.

Several newly completed medical motion pictures produced under the supervision of the American College of Surgeons and approved by it will be shown during the Congress. Reduced fares on the railways of the United States and Canada have been authorized to those holding a convention certificate so that the total fare for the round trip will be one and one-half the ordinary first class one-way fare. Other outstanding features will be the exhibits. In addition to the commercial exhibits the departments of the college will present scientific exhibits. A number of distinguished foreign guests of international reputation have signified their intention of attending. The chairman of the Boston Committee on Arrangements is Dr. Frederic J. Cotton.

PROGRAM

Women's Auxiliary of the Colorado State Medical Society, Sept. 11, 12, 13, 1928

TUESDAY, SEPTEMBER 11

9:00 a. m. to 5:00 p.m.—Registration at Auxiliary Headquarters, Sun Parlor, Antlers Hotel.

11:00 a. m.—Meeting of the Executive Board, Sun Parlor, Antlers Hotel.

1:00 p. m.—Luncheon, Broadmoor Hotel, \$1.50.

2:30 p. m.—Bridge Broadmoor Hotel, Table Prizes.

4:30 p. m.—Tea, Broadmoor Hotel, Courtesy of Mrs. Samuel B. Childs.

8:00 p. m.—Addresses, Ball Room, Antlers Hotel. Donald Balfour, M.D., Mayo Clinic; Leroy Crummer, M.D., Omaha, Neb.

9:00 p. m.—President's Reception and Dance, Ball Room, Antlers Hotel.

WEDNESDAY, SEPTEMBER 12

10:30 a. m.—Business Meeting and Election of Officers, Sun Parlor, Antlers Hotel.

1:30 p. m.—Barbecue, Modern Woodmen Sanatorium, Courtesy of Modern Woodmen Sanatorium, Jno. E. Swanger, Superintendent.

7:00 p. m.—Banquet, Dance and Moving Pictures, Broadmoor Hotel.

THURSDAY, SEPTEMBER 13

Informal Drives. Swimming. Golf.

JACOB CAMPBELL, M.D.

On June 9th Dr. Jacob Campbell died at his home, 930 Thirteenth street, Boulder. Death came after an illness of about two weeks' duration. Dr. Campbell was one of the best known and highly respected physicians of the city of Boulder. He had held the office of coroner and city health officer for a number of years. He had also been an instructor in surgery at the University of Colorado Medical School, which position he held up to the time of the removal of the medical school to Denver. He graduated from the University of Colorado Medical School in 1887. Soon afterwards he located in Boulder where he practiced up until the time of his death.

Dr. Campbell's death was a great loss to the community and profession of Boulder. He will be missed throughout the state.

JOHN ALLEN WENK, M.D.

John Allen Wenk was born January 10, 1892, in Marinette, Wis. He was educated in California and completed his medical training by post graduate work in Philadelphia. When the call of the World War came Dr. Wenk entered the military service of his country. It was at this time that his health became impaired. Upon his recovery he settled in Loveland, later moving to Colorado Springs to specialize in children's diseases.

He was a member of the El Paso County Medical Society, the Colorado Springs Clinical Club and the staff of Bethel Hospital. He made frequent trips over the state in the interests of the Child Welfare Bureau.

Dr. Wenk took an active part in his county medical society, serving with distinction on several committees during the past state conventions in Colorado Springs. His sudden death on June 14 brought sorrow to his many friends over the state. His happy smile and friendly spirit made the world just a little brighter to those of us who knew him.

WYOMING MEDICINE

President, A. P. Kimball, M.D., Casper
Secretary, Earl Whedon, M.D., Sheridan
Delegate to the A. M. A., Geo. P. Johnston, M.D., Cheyenne
Fred Horton, M.D., New Castle
President-Elect, F. A. Mills, M.D., Powell
Treasurer, Evald Olson, M.D., Lovell
Alternate, Galen A. Fox, M.D., Cheyenne
Member of Medical Defense, Earl Whedon, M.D., Sheridan
George L. Strader, M.D., Cheyenne

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT

THE LITTLE THINGS IN LIFE

Life is made up of little things. How small some of them are even the most advanced scientist does not know nor does he know how to measure or classify them.

Great changes are constantly taking place in all organic as well as inorganic fields. Little changes result in great ones as time goes on. Such changes are often entirely overlooked by those who are their constant observers and it often falls to the lot of a stranger to call to our attention the changes that are taking place before our very eyes.

Daily contact results in commonplace things of life being taken for granted. At least we often fail to observe them and only when someone else calls our attention to their existence do we appreciate them.

Consider the gradual development that has occurred in our own State Medical Society. Today some of its founders are alive and active members of the Society. They look back at some of the pioneer meetings and can recall the struggles which have produced the conditions we enjoy today.

Are we measuring up to the possibilities of a complete and perfect State Medical Society? We never will reach such a place, it doesn't exist. To become discouraged because we are not perfect would result in certain failure. It's the vision ahead, the great possibilities for improvement, for growth, for united strength that urge us onward.

We of the West get our inspirations in life and business from our mountains. Their grandeur, stately majesty and inherent beauty urge us on and are our constant reminder of our own littleness and weakness.

Silently these great sentinels urge us on and at the same time remind us of our own unimportance. It is good that they do both. We need the whip which they apply and the lesson they teach lest we ever imagine we as individuals or as doctors are better than those who live near or far away from our homes. To be a little kinder, a little more considerate of others and to work a little harder are all little things that we can all do to advance medical science and good will among the medical profession of our state and nation.

Let us always look to the mountains and forget our little troubles and disappointments of life. The mountains never disappoint us.

E. W.

NEWS NOTES

Dr. L. C. Meredith and family have recently moved from Gillette, Wyo., to Sheridan. The doctor is comfortably located at 244 North Main. Dr. Meredith expects to continue general practice in Sheridan.

Dr. W. A. Steffen and family of Sheridan have recently returned from an auto trip to the central states where they visited the doctor's old home.

Dr. Fred Gassman, secretary of the Northwestern Wyoming Medical Society, who for the past few years has been located at Worland, is planning to move to Los Angeles in the near future.

Lasker Foundation for Research Established

Albert D. Lasker, wartime chairman of the United States Shipping Board, now head of the Lord & Thomas advertising agency, and his wife, Mrs. Flora W. Lasker, have created "The Lasker Foundation for Medical Research," with an initial endowment of \$1,000,000, the gift to go to the University of Chicago.

This unit of research energy will constitute, according to Dr. Max Mason, president of the University, "an attack on the diseases of men and women of middle and old age when their intelligence is at the highest and their value to the community is greatest."—National Board Bulletin.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

OFFICERS, 1927-1928

President, William A. Sedwick, Denver.

President-elect, Samuel B. Childs, Denver.

Vice-Presidents, 1st, James M. Lamme, Walsenburg; 2nd, W. B. Hardesty, Berthoud; 3rd, R. H. Finney, Pueblo; 4th, R. B. Porter, Glenwood Springs.

Secretary, F. B. Stephenson, Denver.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association: Senior, T. E. Carmody, Denver, term expires 1928; Alternate, Ralph Johnston, La Junta, term expires 1928; Junior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929.

Councillors:

	Term expires
District 1. Ella A. Mead, Greeley.....	1930
District 2. G. P. Lingenfelter, Denver.....	1929
District 3. John R. Espey, Trinidad.....	1928
District 4. W. W. Crook, Glenwood Springs.....	1931
District 5. A. W. Robbins, Durango.....	1932

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, B. G. Carson, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, Lawrence L. Hick, Delta.

Denver County—First and third Tuesday of each month; secretary, O. S. Fowler, Denver.

El Paso County—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.

Fremont County—Fourth Monday of each month; secretary, Kon Wyatt, Canon City.

Garfield County—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.

Huerfano County—Third Thursday of each month; secretary, J. L. Baca, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, M. J. Stewart, Loveland.

Las Animas County—First Friday of each month; secretary, M. C. Albi, Trinidad.

Mesa County—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.

Montrose County—First Thursday of each month; secretary, J. A. Spring, Montrose.

Morgan County—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs; E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Geo. Sorensen, La Junta.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. R. Blalock, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, H. W. Averill, Evans, Colo.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Work: J. J. Waring, chairman, Denver; J. B. Hartwell, Colorado Springs; William Senger, Pueblo.

Committee on Local Arrangements: E. D. Downing, chairman, Woodmen; J. A. Sevier, Colorado Springs; W. W. Wasson, Denver.

Committee on Credentials: F. B. Stephenson, chairman, Denver; H. W. Snyder, Denver; F. R. Spencer, Boulder.

Committee on Public Policy: Philip Work, chairman, Denver; Edward Jackson, Denver; C. G. Hickey, Denver; D. H. Coover, Denver; W. T. H. Baker, Pueblo; P. J. McHugh, Fort Collins; C. A. Ringle, Greeley.

Committee on Publication: C. S. Bluemel, chairman, Denver (term expires 1928); C. S. Elder, Denver (term expires 1929); W. H. Crisp, Denver (term expires 1928).

Auditing Committee: G. C. Cary, chairman, Grand Junction; O. E. Coleman, Denver; Florence Fezer, Greeley.

Committee on Necrology: W. A. Palmer, chairman, Castle Rock; H. R. Bull, Grand Junction; C. H. Graves, Canon City.

Committee on Medical Education: J. J. Waring, chairman, Denver; Maurice Rees, Denver; L. H. McKinney, Colorado Springs.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; M. Ethel V. Fraser, Denver; C. W. Streamer, Pueblo.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: C. O. Giese, chairman, Colorado Springs (term expires 1928); Maurice Rees, Denver (term expires 1929) O. S. Fowler, Denver (term expires 1930).

Committee on Military Affairs: John Chase, chairman, Denver; L. M. Van Meter, Denver; E. B. Liddle, Colorado Springs.

Committee on Careers of Members: R. G. Davenport, chairman, Denver; W. K. Reed, Boulder; C. E. Sidwell, Longmont.

Committee to Confer With Boy Scouts: H. S. Canby, chairman, Denver; R. S. Johnston, La Junta; Atwater Douglass, Denver.

Committee on Mental Hygiene: F. G. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; T. R. Love, Denver; C. W. Thompson, Pueblo; T. C. Taylor, Fort Collins; F. W. Lockwood, Fort Morgan.

Committee on Periodic Health Examinations: C. F. Kemper, chairman, Denver; G. H. Curfman, Salida; A. H. Harris, Denver.

Committee on Full-Time Secretary: R. S. Chamberlain, chairman, Denver; B. B. Blotz, Rocky Ford; Jean Gale, Denver; A. J. Nossaman, Pagosa Springs; N. B. Newcomer, Denver.

Committee on Co-operation With the State Pharmacal Association: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.

Curator of Exhibits: E. D. Downing, Woodman.

Committee on Golf Tournament: L. G. Brown, chairman, Colorado Springs; J. R. Arneill, Denver; L. M. Van Meter, Denver.

TUNING IN

Educating for Longer Life

After 19 years of its policy of educating for longer life through a welfare division which was founded upon the premises that "insurance was not merely a business proposition but a social program," the Metropolitan Life Insurance Co. has just published a pamphlet summarizing the results of this policy. The welfare division, organized in 1919, faced the tragedy of unnecessary sickness and premature death in the home of the average industrial policyholder. Mortality among such policyholders was materially higher than among the general population, and the main purpose of the campaign begun in 1919 was to educate them regarding personal hygiene, living conditions, disease prevention, better housing and the reduction of industrial hazards.

The welfare division now demonstrates that this educational campaign has raised the situation as to industrial policyholders to that of the general population, for mortality among the policyholders has gone down steadily from 12.5 in 1911 to 8.9 in 1926. The latter figure is the same as for the general population, yet the industrial policyholder belongs to a group which had lower standards of living and was subject to greater hazards than the general population. And, in the last 14 years, the industrial policyholder has gained more than eight years in expectation of life compared with less than a five-year gain in the population at large.

With clear logic, Dr. Lee K. Frankel, second vice president of the Metropolitan Company, states "It is obvious that an anti-diphtheria campaign, or a tuberculosis hospital, or a visiting nurse affects the death rate. . . .; that a pamphlet about poor milk, a class in English for foreign born or a campaign for a new tenement house law may likewise affect the death rate."

In the experience of the health educational service of the American Red Cross, obvious truths have also to show for the work carried on since the Armistice a preponderance of testimony of the betterment of health and a reduction of "unnecessary" deaths from disease.

The Metropolitan Company has in 19 years spent in its educational program to promote longer life almost \$32,000,000. It has paid. Measured in terms of lives the improvement in industrial mortality in 1927 over 1911 demonstrates a saving of 72,570 lives; measured in terms of dollars and cents, a saving of more than \$22,206,000 in death claims in 1927; and an accumulated saving of 489,638 lives and \$122,116,000 between 1911 and 1927.

This pamphlet "Educating for Longer Life," is a very live document, not only of popular interest, but of interest to all persons directly concerned with health activities.—Red Cross Courier.

France's Decreasing Infant Mortality Rate

France in 1927 had the lowest infant mortality rate in its history—83 per 1,000 live births—according to provisional figures recently published. The rate for 1927 was 97. The low infant mortality rate was accompanied by a slightly lowered birth rate.—Children's Bureau.

REPRINTS

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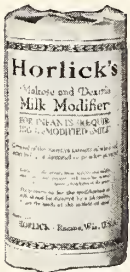
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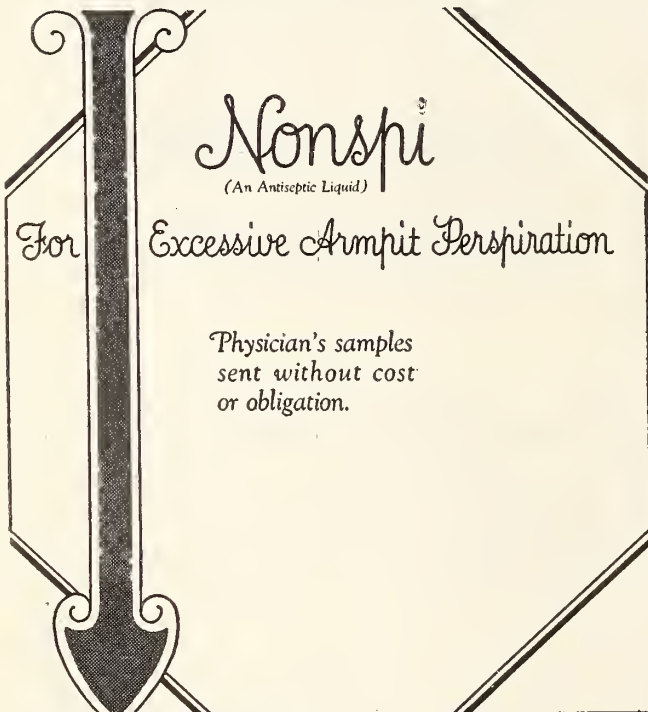
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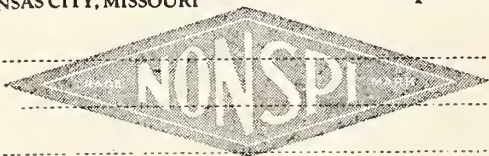
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Nutrition for Tennessee Teachers Wins Enthusiasts

Nutrition, as taught by the Red Cross, is now becoming a recognized part of the equipment of teachers in Tennessee. Due to the personal interest of Miss Jessie Harris, head of the home economics department of the University of Tennessee, arrangements were made by which teachers could get university and normal school credit for nutrition work. Now a nutrition course for teachers is a part of the curriculum of the summer school for teachers at the university.

Miss Mildred R. Tackaberry, who conducts the course, reports that the class expanded from its original 23 rural teachers to 39 within one week. Some of the students drive in from points as far distant as 25 or 35 miles to attend the 8 a. m. class. These teachers, she says, feel that nutrition is something that they can apply in their school work. Hence their enthusiasm.—Red Cross Courier.

Hennepin Co. Opens T. B. Boarding House

The Hennepin County Tuberculosis Association (Minneapolis) has recently inaugurated a new venture, a Boarding Home for Tuberculous Patients. Sixteen rooms are available to men and women who have recovered from tuberculosis but who need a good home to safeguard their health while they are getting back to work and becoming financially independent. The home will be financed by the income from guests who are able to pay, by Christmas seals and by special funds. While the home is not meant to serve, at least at the present time, as a means for sheltered employment—and is merely a boarding place—it fills a unique need in the transition of many single men and women from the sanatorium back to the job.—Bulletin National Tuberculosis Association.

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C. F. KEMPER, M.D., Denver, Colorado.

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OCTOBER, 1928.

Number 10.

EDITORIAL NOTES AND COMMENT



WILLIAM SENGER

President-Elect of the Colorado State Medical Society

THE 1928 SESSION

The Fifty-eighth Session of the Colorado State Medical Society is now history. The scientific program was of high order, characterized by an unusually large number of addresses and papers by distinguished guests. The scientific exhibits, of national recognition in previous years, more than maintained this place of excellence by the diligent work of Dr. E. D. Downing. Likewise the overworked of our profession found ample facilities for recreation and play. All in all it would seem that, to the professional as well as the casual convener, it was a successful convention.

From the standpoint of business transacted by the House of Delegates, it was perhaps the most significant meeting in the history of the Society. Aside from the routine action on committee reports and the election of officers, the delegates, after careful deliberation, and only influenced by the appeal of the logic of the situation, unanimously agreed to provide for and secure a full-time, executive secretary to act as business agent for the Society. They further provided that, for the present at least, the additional expense of this project be met by raising the annual dues five dollars per member, with the hope that this may ultimately be reduced by increased advertisements in Colorado Medicine, rent of booths for commercial exhibits at annual meetings, etc. The officers of the Society, with such assistance as they choose to designate, have been authorized to employ such a business agent and direct the work.

While this action may give the impression of an experiment in Colorado, it is not without successful precedent. Such an officer is thought essential not only to the American Medical Association, but also to many sister state societies. At least two states with memberships no larger than ours have employed a full-time secretary for years. So far as can be learned there has been no desire on the part of such states to abandon the idea.

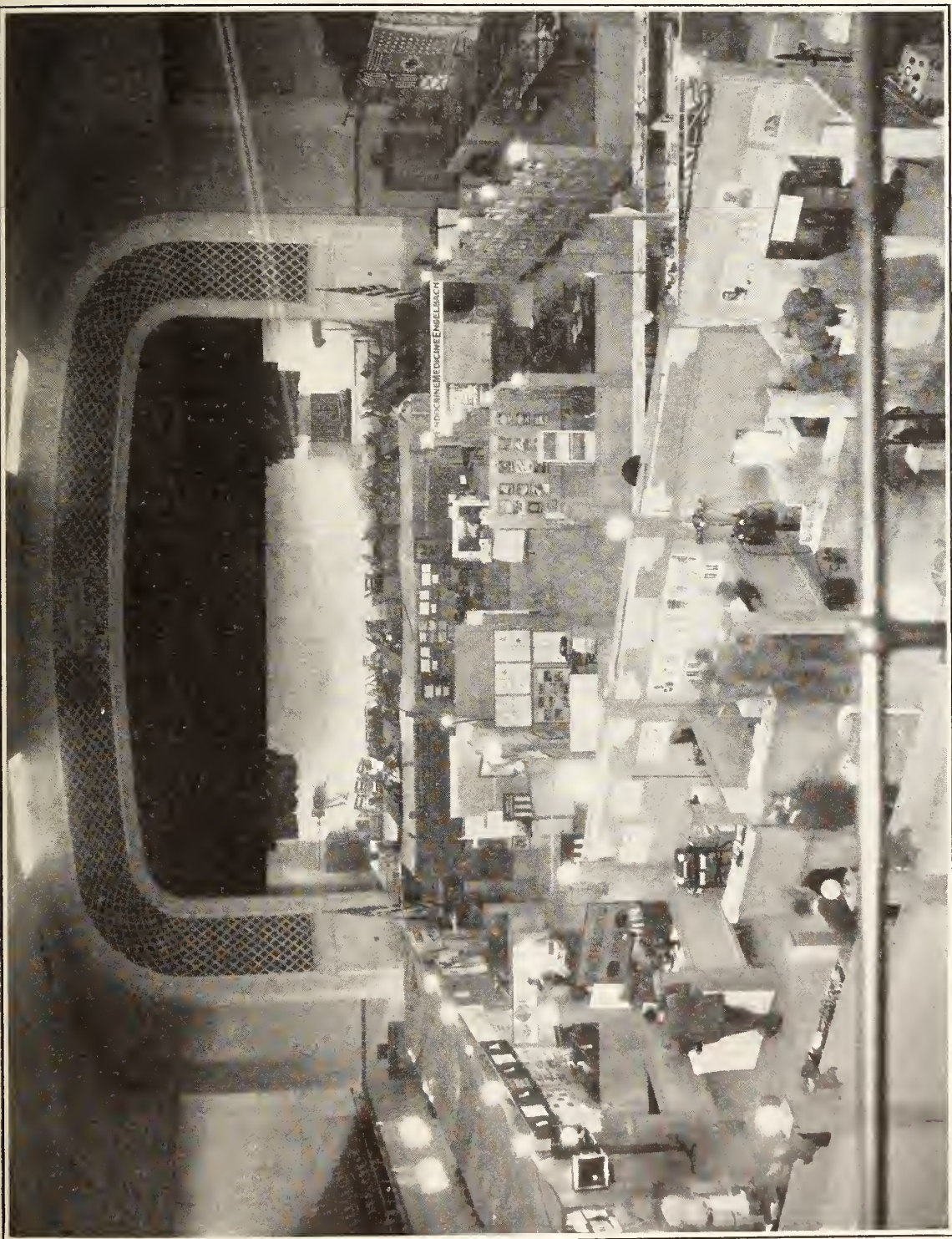
However, the action taken by the House of Delegates is in no way irrevocable, and,

should a thorough trial fail to justify the plan, it could easily be abandoned at the will of the Society.

WILLIAM SENGER

Dr. William Senger was born in Port Jervis, New York, where he secured his elementary and high school education. He received the degree of Bachelor of Arts in Williams' College in 1895 and the degree of Doctor of Medicine from the School of Medicine of Yale University in 1901. He interned in the Presbyterian Hospital of New York from 1901 to 1902 and subsequently in Minnequa Hospital in Pueblo from 1902 to 1903, after which time he began the practice of internal medicine which specialty he practiced until 1909. In 1910 his interests were changed from general medicine to general surgery, becoming Assistant Chief Surgeon to the Colorado Fuel and Iron Company at Minnequa Hospital in 1913 which position he has held with honor to the present time. In addition to that he has been local surgeon for the Colorado and Wyoming Railroad since 1914 and attending surgeon for the Colorado State Insane Asylum since 1918. In addition to his being a member of the Pueblo County Medical Society, the Colorado State Medical Society and the American Medical Association, he is a member of the Western Surgeons' Society and the American Association of Industrial Physicians and Surgeons. He is also a Fellow in the American College of Surgeons.

At the annual meeting of the House of Delegates of the Colorado State Medical Society, Dr. Senger was elected president without a dissenting vote. His friends and acquaintances are sure that such an expression of confidence is well founded and that he will discharge the duties of this office in a manner creditable to himself and the Society. He is a resident of Pueblo with offices in the Minnequa Hospital where he will be available for the consideration of Society business at any time. The Journal congratulates Dr. Senger upon this honor and hopes for him a successful administration.



SCIENTIFIC AND COMMERCIAL EXHIBIT VIEW FROM NORTH BALCONY, LOOKING SOUTH

"MEDICINE TODAY AND TOMORROW"*

SAMUEL BERESFORD CHILDS, M.D.

DENVER

Medicine is and must needs be an integral part of our civilization since each new medical discovery contributes to human progress and brings about consequent changes in general, social and economic conditions. These changes, due largely to the marvelous development of medical science, are so far reaching as to affect all phases of our national life, hence in discussing medicine and its service to mankind we are dealing with one of the most fundamental problems of our social organization.

In looking for the most practical application of the marvelous achievements of medical science we find it lies in preventive medicine and public health. Both within the profession and in the public mind there is evidence of a widespread and growing interest in these subjects, and this awakened interest on the part of the public in the problems which so closely concern the profession has effected not only great changes in the duties of the physician but it has also saved countless lives and an economic loss of great value.

Let us recall for a moment some of the practical benefits the world has received from preventive medicine alone. The investigations of the medical laboratory with the contributory aid of physics, chemistry, bacteriology and pathology, furnish a brilliant record of achievement whereby man's life has been prolonged, various animal carriers of disease have been discovered and classified and epidemics have been declared to be "preventable accidents" rather than "visitations of an avenging providence." Sanitation of water and food supplies have made great advances but the sewage problem has not been solved, as the intimate relation between water supply and sewage disposal bears witness. The knowledge that many diseases of the heart, kidneys and gall bladder are due not infrequently to infected teeth, tonsils or sinuses; the discovery of

radium following that of the roentgen ray and its resultant cure for certain forms of cancer, the ability to estimate the functions of many of the organs of the body through chemical analysis of blood sugar and blood urea, as well as blood efficiency studies are only a few of the benefits of preventive medicine. In addition to these and equally as wonderful is the increased knowledge of the functions of the ductless glands, the use of insulin, the use of iodine as a preventive of goiter, thymol as a cure for hook-worm, liver diet for anemia, prophylactic vaccines for typhoid, the early administration of convalescent serum for polio myelitis and the recent research in tularemia. Let us not forget that by the use of preventive medicine thirty-five thousand picked medical men were enabled to keep the American army in the World War in the best physical condition the world has ever known.

Preventive medicine and its practical application in economic service alone has thus contributed much to the world's welfare and has effected great changes in its social and industrial conditions. While there is, as yet, no specific for pneumonia nor have we conquered our worst foe, cancer, which, according to Dr. Dublin, statistician of the Metropolitan Life Insurance Company, causes an economic loss as great as though three hundred thousand workmen had been idle a year or a monetary loss of approximately eight hundred million dollars in 1927 still many problems now appear to be nearing a solution and many more may be solved in the near future.

Surgeon General Cumming in his last report stated that conditions throughout the world were the best on record and that only one case of yellow fever was listed on this western hemisphere and that was in Brazil. Late press reports, however, give a small number of cases of this disease in Brazil at the present time. On the other hand, although smallpox cases were of a particularly mild type, thirty thousand four hundred and fifty cases in forty-one states is to be de-

*Presidential Address delivered before the fifty-eighth annual meeting of the Colorado State Medical Society, Colorado Springs, September 11, 1928.

plored and it would seem that anti-vaccinationists, Christian Scientists, and followers of other cults have not only created a prejudice against vaccination but have succeeded in preventing its use to the extent that there have been outbreaks of this dread disease. Spread of the Rocky Mountain fever has prompted an investigation of the Public Health Service and pellagra has shown an alarming increase (two-fold) due to economic stress and an unbalanced dietary caused largely by hard times. While the problem of pellagra has not been wholly solved, the careful studies of Goldberger seem to point the way to a practical means of prevention and ultimate cure.

The "common cold" which causes a great loss to industry and business is to be made defendant in a five-year war against it by some of the best medical talent in the country. The John J. Abel Fund for research on the "common cold" under the direction of Dr. Abel of Johns Hopkins leads the fight. Today surgery has reach a high degree of technical efficiency, and while further improvement is to be expected, tomorrow's advancements will be in the prevention of diseases demanding surgery and in finding methods for hastening wound healing, thereby lessening the period of disability.

Each year seventeen thousand mothers and two hundred thousand babies die, according to Dr. Frank of the Metropolitan Life Insurance Company. The report of the Child Health Association that the infant mortality rate for 1927 was 64.9 per thousand as against more than 100 per thousand in 1915 is gratifying. An eminent authority* in this country says that "A low infant mortality is in some degree an index not only of sanitation but of a broader public health program in a given community or country." The treatment of women at childbirth and the medical care they receive may be considered a criterion of civilization. America's backwardness in eliminating death at childbirth is a cause for shame for among the twenty countries of the world which record death rates at childbirth the United States ranks nineteenth, second only to Chili in pro-

portion of deaths, which is twice that of England and three times the rate of Denmark. This high death rate in our country is due in part to a large negro population, and to the employment of unskilled midwives.

Today's physician is far superior to his predecessor in scientific knowledge and efficiency, but the public has failed of appreciation and has reacted so unfavorably to changed conditions that its attitude toward the profession seems little less than one of distrust. Never before in the writer's knowledge have the leading magazines and newspapers contained so many critical articles, while innumerable attacks upon the integrity of the profession have been made in our state legislatures.

It is considered by some that an important factor in lowering the physician's prestige is the cheapening of his knowledge and skill by the general drift toward free medical service, for in the United States alone eight million people avail themselves of free medical attention, and according to an official report issued by the American Medical Association there were four thousand dispensaries in 1922. While it is generally recognized that free clinics and free hospitals are necessities for the indigent, this does not mean that the privileges of these institutions should be abused by the public.

Material development in medicine naturally follows its advance and these developments in turn call for a large expenditure of money which has been promptly forthcoming from a generous public in the form of endowments. But this response to the needs of medical science has not only increased the demand for free medical care but has, in many cases, provided free medical attention to those who are well able to pay for it, thereby creating a new and vital problem, i. e., the abuse of charity. Every possible means should be employed to ascertain the ability of the person to pay for the treatment for which he applies in every free dispensary, as this may serve to check any disposition on his part to do an injustice to the physician who is ever ready to give his services to those genuinely in need but who has a right to demand fair play.

*George E. Vincent in North American Review.

Some writers claim that another factor in lowering the physician's prestige is the evidence of poor work on the part of some physicians and the regrettable practice of fee splitting among others—and just here let me quote from Judge Harold Stephans, general counsel of The American College of Surgeons who denounces the practice of fee splitting as follows: "The dangers of this system are palpable. The doctor in need of money is tempted to adopt this method of handling cases of a border-line character which may not need operation or specialists' treatment. He does it for gain. Many a patient has gone under the knife unnecessarily because of this practice. Their lives are wantonly jeopardized. Death rate statistics tell a pitiful tale."

Medical expert testimony at the present time seems to need adjustment. It must be a bewildered public that listens to diametrically opposed opinions of recognized specialists and this fact neither increases the public's confidence nor does it enhance the physician's prestige.

Many other problems confront us and one of the most serious is that of a more satisfactory understanding and relationship between the medical profession and the social agencies, for the failure to definitely settle this question has led to a feeling of unrest. Since there is no escape from the fact that physicians must cooperate with the public health officials, it would seem best to face the situation and to agree upon a plan mutually satisfactory. There should be collaboration between them, but the County Medical Society should sponsor new measures and public health activities, while social welfare agencies should keep the County Medical Societies informed of their work.

Another problem which faces us is the well-grounded fear of the establishment of so-called State medicine and the high cost of illness is supposedly the chief cause of this danger. "No thoughtful person can welcome the extension of State medicine beyond the legitimate and necessary field of public health activity, but if private initiative and voluntary cooperation fail, it may be impossible to resist the demand for governmental intervention," says Dr. Phillips. A similar

note of warning has been sounded by Dr. George Vincent of the Rockefeller Foundation, who declares that "it would be a salutary thing for physicians now and then to contemplate themselves from a social point of view."

It is only recently that licensed physicians have contributed to public health education and today members of the state and county societies are being urged to impress upon the public the value of periodic health examinations. Medicine of the future will deal more with prevention and less with cures, and periodic health examinations will tend to restore the former close contact with physician and patient, thereby counteracting to a certain extent the influences of specialization. Last year five million people who had never before asked for an examination did so, according to Dr. Franklin Martin, director general of the American College of Surgeons. Education of the public in health is now assuming great importance, and because of this many will enjoy years of health who otherwise would die from disease not recognized in its incipency. The benefits to be derived from the routine examination of school children cannot be overestimated. Health week, with its broadcasted talks and published articles by members of the profession, would give the laity much timely information and should be encouraged under the auspices and regulations of the local County Society.

Education of the public on the importance of recognizing the early signs of cancer and the necessity of prompt consultation with a physician have been carried on for several years, but there is need for untiring efforts in continuing this education as available statistics show that cancer is yearly more exacting in its death toll.

Criticism has been made that we are overcrowding our courses in the under-graduate schools with more than is necessary of the specialties, that we are over-cultivating the laboratory side and that we are giving time to them which should be given to emphasizing fundamentals and essentials. It would seem expedient that Hygiene and Public Health instruction should have a prominent place in the curriculum of the medical school.

The knowledge and practical application of therapeutics is one of the most valuable assets of the physician, and while the medical student is well instructed in the use of drugs, but little if any attention is paid to the importance of physical therapy. The average physician's knowledge is limited in the therapeutic uses of water, dry heat, massage, exercise, light and electricity, and his failure to recognize the value of physical therapy probably accounts for the present flourishing condition of the osteopath and chiropractor. Another of today's problems which is widely discussed is the growing scarcity of physicians in the rural districts, and while the belief seems to be general that the problem is fundamentally an economic one, it is being intensively studied by various committees.

Insanity has more than doubled in thirty years, and while medical science of tomorrow may establish a physical basis for its cause, it now seems that the best way to attack the problem is at its source—immigration. Sterilization is another proposed method of preventing insanity, but the public is no more ready for sterilization than it is for birth control.

We as physicians have many duties and responsibilities as keepers of the public health and chief among these is an obligation to use our influence for the appointment of thoroughly trained sanitarians as heads of various departments of health.

These are a few of the problems that are worthy of our review, nor are we unmindful of their existence. Neither are we blind to the fact that something is wrong with medical economics, for with all but the very rich, the cost of illness is a major problem. The cost of sickness to the public has greatly increased, and there has been a corresponding increase in the physicians' expenses, hence it seems that a solution of this problem can only come from a free expression of opinion from the physician and the public. Plans to that end have recently been announced by Dr. Wilbur of Leland Stanford University which call for a five-year program of research by a committee of eminent physicians, sanitarians, economists and laymen who will endeavor to solve the question of

how "a family of moderate means can obtain adequate medical attention at a cost which it can afford."

The best estimate of the cost of sickness in the United States is over two billion dollars a year, or 3½ per cent of the country's income, says Dr. Dublin, and this enormous figure is caused by the necessity for a large number of professional workers and assistants. The hospital, which is the outgrowth of modern medicine and changed living conditions, is largely responsible for the increased cost of illness, and this need for hospitalization with the added expense of nurses has so increased the expense of illness to a patient that in many cases he is unable to pay his physician. While the man with a family and a modest income could probably meet the expense of any one item of sickness without great hardship, the aggregate of separate charges makes a staggering total.

It has been suggested by some that so-called pay clinics in hospitals may help to lessen the cost of illness, and as ten million people in these United States are now receiving clinic care, and these clinics are becoming self-supporting, it presents to us a significant question for consideration. The pay clinic of Cornell University Medical School in New York is an interesting experiment in giving adequate medical care to people of moderate means. Still another plan of supplying economical medical service is the development of student health work in secondary schools and universities. The most interesting examples of these latter are found in the universities of California, Michigan and Minnesota, where approximately ten thousand students are cared for annually at a very small expense to each student.

Industry, too, is providing medical service on a large scale for its workers and many employers have organized medical departments in their numerous plants.

We hear so much today of preventive medicine and public health that we have almost failed to speak of that highly important element in medical practice, the human influence. Prevention is invaluable in the practice of medicine and will become more so as the science of medicine progresses, but there will always be need for him who cares

for the sick and injured, for the personal touch and for a close contact with the family, for no profession outside the ministry demands as close relationship as that between the sick and the physician who ministers to them. We predict a reaction in favor of the family physician, not in the older sense when all of his knowledge was gained by his own efforts, but as the coordinator of his knowledge and that of highly trained specialists.

We have spoken at length of the lowering of the physician's prestige and of the conditions which may be responsible for it, and the

remedy must come either from him or from the public. Since the doctor is the victim of the present-day system, his efforts to remedy these conditions will meet with discouragement. If, however, he would regain his lost prestige, one change seems imperative, and that is, a change must come in his personality, for he must become more humane and less commercial, he must acquire a knowledge of human nature with a sympathetic understanding of human motives. In addition to these, tomorrow's physician must possess intellectual attainments, a broad culture and, most vital of all, a human sympathy and compassion.

A PARAMOUNT PROBLEM OF MODERN MEDICINE

HORACE G. WETHERILL, M.D.
MONTEREY, CALIFORNIA

To have been engaged in the study and the practice of medicine from the year 1875 till today is to have had an opportunity to observe the progressive march of medicine through its era of greatest scientific achievement.

Coincident with the advancement in the status of modern medicine and its establishment upon a scientific, rather than upon an empirical basis, the practice of medicine has been changed in many important particulars.

The "Doctor of the Old School" no longer exists, even in Drumtochty, and the Wheelum MacLures of yesteryear are as extinct as the dodo. Nearly all that went with the era of the intimate family physician who was supposed to know every thing and who did every thing; who dispensed his healing potions from his saddle bags, has given way to the scientific era in medicine which is accomplishing its greatest triumphs, not in the cure of disease, but in its prevention.

To us who are in the profession, such statements as I am now making are stale platitudes and there is no necessity for the presentation of established data to prove obvious facts. You all know too well the history of this phase of medicine.

My purpose is to attempt an analysis of the situation in its bearing upon the rela-

tions of the physician and surgeon to the people **now**, and to anticipate, if possible, what may be in store for, and what relations may exist for, the doctor of the next generation or the next half century, and how, if at all, the trend of this inevitable alteration in relations may be modified or guided by the organized medical profession in the combined interests of the doctor and the patient, for unquestionably, there interests are mutual.

"The one outstanding problem before the medical profession today is that involved in the delivery of adequate, scientific medical service to all the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life."*

Ray Lyman Wilbur, the president of Stanford University and an ex-president of the American Medical Association, is the chairman of a national committee entitled "The Committee on the Cost of Medical Care." This committee proposes to make a five-year study of the relations of the physician to the people and to forecast and outline, if possible, and perhaps guide and direct—if the cooperation of the medical profession can be secured—the trend of events for the future.

The work is being undertaken in the hope that intelligent guidance by intelligent men

*Olin West, M.D., Secretary of the A. M. A.

and women who have vision and foresight and the welfare of the medical profession and the people at heart may be able to bring about better results than if the evolution of a new status is directed by socialistic or bolshevistic propaganda through legislative enactments by those who may be guided by personal and political prejudices or by lobby pressure rather than by altruistic purposes.

Measures for the adequate prevention of certain contagious and infectious diseases require elaborate campaigns which must be carried on by corps of trained workers who are organized for this particular purpose. Yellow fever, hook worm disease, diphtheria and typhoid fever when epidemic, are examples.

The National Government must have a public health service, each state a health department and counties, cities and towns must have health officers and inspectors, all in the public interest.

For more than a century teaching medical organizations have operated free clinics and hospitals for the poor, and the states have conducted asylums and hospitals for epileptics and for the insane, and reformatories and prisons for criminals and degenerates, which are included in this list because they are frequently pathologic patients. Other state agencies have more recently been established for the care and treatment of the tuberculous and for crippled children, for the blind, the deaf and dumb and for the indigent, aged, and helpless.

Enormous endowments of untold millions are being given for hospitals and homes, for child study and welfare work, for public clinics and research laboratories. Insurance companies are organizing enormous medical departments for the prevention and treatment of disease and industrial organizations are making contracts for the medical care and treatment of their employees on a grand scale, railroads have their own medical organizations and hospitals; all of which are good and sufficient reasons, aside from the highly developed scientific phases of modern medicine and the incident **highly specialized fields in which modern medical men work**, why the "Weelum MacLaures" of the world have gone with the dodo.

Throughout America clinics and groups of medical men, some of them enormous and dealing with thousands of patients each year; clinics for public schools and traveling clinics for the treatment of eye diseases, hook worm cases and the like, and here in Colorado a traveling psychopathic clinic sponsored by our State Hospital; endowed research groups, orthopedic clinics and so on, all grow and flourish like the proverbial green bay tree. Then, too, there is the growing popularity of the "Medical Health Centre" of which, for example, Los Angeles county in California already has six in operation, will soon have a seventh and then some more.

These are the conditions to which the modern medical man of this generation has to adapt himself, and they are **existing conditions**; not a theory or a threat for the future one must meet some day, for **they are here now** and the wise man will decide to meet them bravely and fairly and to adapt himself to the state of things as they are with the best grace possible, making an effort in conjunction with his fellows to prevent the utter demoralization which would certainly come with the advent of that politico-medical monstrosity called "State Medicine," with all the corruption and inefficiency government control implies.

It might easily come to pass through that more recent irresponsible asininity known as "the initiative and referendum vote" by which the dear people wish upon themselves such abominations.

How far and in which direction community interests and the farther development of preventive measures may take us away from Drumtochty and beyond the newest fields exemplified by that great teaching, clinical and hospital centre in New York City, into which a half dozen hospitals and colleges are combined, no man can say, but it would appear to be certain so far as one's vision reaches from our present point of view that "State Medicine" will be the least desirable of all the alternatives proposed or possible to come about.

Ways and means must be found for providing "adequate scientific service to all the people, rich and poor, at a cost which can

be reasonably met by them in their respective stations in life," and above all else ample provision must be made for "that large proportion of people of moderate means who, desiring to meet all their obligations find it difficult if not impossible to carry their families through periods of illness."*

Mounting costs for hospital and nursing care, prohibitive charges for surgery and dentistry, and in particular for obstetric care, are the incentives which move the minds of men and women toward state medicine and drive them to the politician and the quack for relief. Contraception and companionate marriage, quackery and cults and even crimes are bred and fostered by such antecedents. "Since our legislative groups come largely from this portion of the population (the middle class so called) a sympathetic ear is given to solutions often proposed by those who see only one side of the picture." "We can not escape change. The question is how are we going to guide it."

Our old code of ethics frowns upon publicity and yet under existing conditions disease may be prevented and lives may be saved, at times only by the education of the people through a publicity campaign carried on by those members of our profession who are best fitted to give them the required information.

It is a pleasure to commend the fine publicity work done by The Denver County Medical Society at one time under the initiative of one of my former pupils when he was the president of that organization (Dr. Geo. Blickensderfer) and it is a source of pardonable pride that other Colorado county medical societies have also done much good work along the same lines, particularly in the various educational cancer campaigns.

My purpose in presenting this matter to you now is not primarily to express by own opinions but to elicit, if possible, the opinions of others and to stimulate thinking which may lead to coordinated action in support of the honest effort the National Committee on the Cost of Medical Care is making. The 140,000 physicians in the United States have

more immediately at stake than any other portion of the population and their interests can be served only by proper organization.

The aim of the Committee on the Cost of Medical Care is to try to develop a program which will be based upon the three following groups of studies:

1. A preliminary survey of data showing the incidence of diseases requiring medical service and of the existing facilities for dealing with them.

2. Studies on the cost to the family of medical services and the return accruing to the physician and other agents furnishing such service.

3. Analysis of specially organized facilities for medical care now serving particular groups of the population.

* * * * *

In closing let me appeal to you for your support and cooperation in furthering this timely and very important movement, more important, perhaps, to us as medical men than to any other group, for it has vast potential possibilities for promoting the greatest good to the greatest number both in the profession and among the people. It deserves our heartiest support.

Note. Numerous short quotations have been made in this address from the paper read at the last meeting of the California Medical Association by Ray Lyman Wilbur, M.D. His vision and foresight and his ability to express in few words the quintessence of a subject when under consideration would appear to justify this abstraction. I wish to express my thanks for the assistance so given me though my address was outlined, formulated and partly prepared before his paper was published and brought to my attention.

H. G. W.

DISCUSSION

C. E. Cooper, Denver: I have been very much interested in this whole subject for several years. My contact and experience has been that which I have obtained in practicing in the various charitable clinics and for charitable agencies in Denver.

Twenty-five years ago, when I began, natural forces made the selection of the charity patient. The alcoholic, the poor, the ignorant—those that were unable to compete with the environment of life, that fell by the wayside, were the charity patients. Today the Social Service Agency makes the selection, natural forces are no longer operating.

The problem that has been presented by Dr. Wetherill and Dr. Sewell, is about this: It is the business of the medical profession to bring the cost of medicine within the pocketbook of the patient. Now, we medical men conduct our business today about as we did 200 years ago—that is, we get a degree, hang up a shingle, start to practice, and send the patient a bill. Every other

*Ray Lyman Wilbur, M.D. The Cost of Medical Care. California and Western Medicine for July, 1928.

endeavor in life has been altered, business has been changed, but the method of the medical man's business has remained unchanged. The little man, if he is a grocer, now belongs to the Piggly-Wiggly or to some other organization; the large dry goods store belongs to a chain of dry goods stores; the big railroad is now in association with other big railroads, but the medical man stays as an individual. He was born an individual, he prefers to die an individual, and he wants to do by himself and refuses to recognize the great values of co-operation with his fellow medical men, when their interests are identical.

How can you bring the cost of medicine inside the pocketbook? The science of medicine we have to offer the patient for the benefit of his health, to get him out of his illness, has progressed very rapidly. The pocketbook of the individual has not progressed by any means as fast, and therein lies the difficulty. How are you going to bring the cost within the pocketbook? Well, group medicine does it in certain instances, group medicine where the ideal behind the group is to bring the cost within the price limit. It is illustrated throughout the country that certain environmental circumstances in certain cities seem to influence group medicine adversely. Therefore, in those localities it does not work; every medical man cannot belong to a group, but every medical man can see plainly his interests, and his brothers' interests are identical; he can, if he will forget his individuality and by co-operation, bring the cost very much lower than it is at the present time, and very much more within the ability of the patient. How is it to be done? I think this way: A big organization builds a factory, they do not build a factory to run a machine twice a day, they build a factory to produce material; they build a factory for the purpose of getting as large a production as they can, a smaller profit with greater production. Why can't the medical men do it? Why can't the x-ray machine in A's office be running all day long? Why can't a commercial laboratory have 10 assistants, or 20? Why can't we cooperate? Can't there be an understanding, a co-operation, a mutuality, we will say, between a large number of doctors, so that they will use the laboratory, use the x-ray, use the physiotherapy, use the consultant and use the hospital? Why is it, for instance, that a private hospital today will furnish to a corporation who sends their patients there the same service exactly for one-half the amount that I can get, or that you as an individual can get, or somebody else as an individual can get?

Isn't it a practical plan?

There is another phase to this question, Social Service Agencies, those agencies that are giving to people free medicine. I might say here I am not nearly so afraid of State medicine as I am of free medicine. Why should we have State medicine, when the doctor is willing to work for nothing? If I am willing to work for nothing, why should the State pay me? We are not going to have State medicine for a long time. Now, these agencies are here, and they are here to stay, and we might just as well make up our mind that we have to live with them, whether we want to or not. Thirty per cent of our population—I am speaking now of Denver—has an earning capacity sufficiently low so that they are entitled to free medicine. Now, that is a large slice off of the population. I am not talking in the interest of a man who has a rich clientele, it makes very little difference to him; I am speaking in the interest of the great mass of doctors who have all sorts and kinds of people to deal with—rich, poor, middle class, deadbeats, honest, and all the rest of

the kind of people we meet. Take 30 per cent of their patients away from them, and what have they left? Not a great deal, they haven't very much surplus, nor do they get a chance to succeed in the way the world looks at success, and the doctor is just as much desirous of succeeding as any other individual succeeds. He has a heart full of altruism, but it will not pay all his bills.

Jabez Jackson, Kansas City: I only want to call attention to one fundamental fact; we must remember in the discussion of all these problems that fundamentally the practice of medicine has undergone one profound change in the last generation. Forty years ago, the time Dr. Wetherill alludes to, the practice of medicine in all of its aspects was entirely in the control of medical men. Medical schools were supported by, run by and dictated to by the men who were practicing medicine. Hospitals were run by, controlled and dictated to by the men who practiced medicine within those institutions. Within that period of 40 years the entire control of all the agencies used by doctors has passed from the doctors to the control of the capitalists. Do you realize that? Forty years ago we realized when science came into medicine, as much as we all appreciate what it has contributed to the glory of medicine, yet it has brought the fundamental fact with it that the medical resources were no longer able to provide those things which science demanded, and that outside financial aid was necessary. You can remember less than twenty-five years ago, or about—I think it was 1903—when the American Association first organized the Council of Education for the elimination of some of the questionable agencies in medical education. When we realized that we could not supply the financial support to give the financial aid, we called upon the capitalist; and let us say of the capitalist that the response has been most glorious on the part of the men of money. Since that time millions of dollars—countless of millions of dollars—have been poured out to provide us the type of education and service we asked for, but in asking for it we have turned the control over to agencies and influences entirely outside of the profession, until today you go into your hospital, for instance, you have your laboratories there controlled by men who are employed on a salary, perhaps scientists purely, medical men not at all. You find your hospital is controlled by the board of directors, who may be bankers, grocerymen or lumbermen, but not doctors. You find your nurses' organization. Your nurse used to be your medical aid; today, what is the situation? You have your independent boards of nursing in the State of Colorado, I presume. They decide upon the status of nursing education; they tell the hospital where it gets off, and they tell you where you get off. The result is today, instead of being men of your own profession, you are, practically speaking, in the control of outside agencies; and when we start, therefore, to recognize that we have got to deal with those conditions, we have to deal with them under facts as they exist, and we have to educate, therefore, our organizations.

A. W. Metcalf, Denver: I have just one thought on this subject, and that is this, that the social agencies state whom we shall operate on for charity. How can a doctor, who is only endowed with his brain and his talent, hope to compete with a hospital which is endowed with millions, and they always demand that these people shall pay them some small pittance? And since this thing has gone out of our hands and is in the hands of the laity, then there is only one thing more we ask of them, that when they charge they shall pay us in proportion.

ON THE COST OF MEDICAL CARE*

HENRY SEWALL, M.D.
DENVER

That we should deliberately and formally grapple with this problem is highly creditable to our hearts and our heads, not to say to our higher instincts of self-preservation.

The voluntary but distinguished national Committee on the Cost of Medical Care in its brochure outlining a five-year program of investigation, has trenchantly exhibited certain unhappy economic relations between the medical profession and the public and has announced in the protocol of its work a dictum of the Secretary of the American Medical Association, Dr. Oliver West, "The one outstanding problem before the medical profession today is that involved in the delivery of adequate scientific medical service to all the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life."

The committee expressly invites comment, criticism and suggestion on its proposed outline of work.

It requires some self-restraint in him who ventures into this forum not to diffuse himself in a philosophic treatise; but evidently at this stage what is wanted are categorical and succinct deductions from experience in professional contacts. A consensus of many minds, having various interests and different points of view, may be expected to lead to an outline of voluntary evolution which may ultimately harmonize our ideals for the development of humanitarianism, science and economies in medico-commercial relations.

Our problem involves but two quasi-opposed human factors,—the doctor and the public. In the present discussion I will wholly leave out of account people of affluence and those sufficiently well-to-do to allow of the enjoyment in moderation of the luxuries of life.

Nor shall I add to the difficulties of our subject by considering certain sociologic re-

lations of medical practice, which might be regarded as putting the doctor himself on the defensive, as exemplified in **contract service** in which considerable and dependable emoluments accrue to the medical men, at extremely small cost to the patient, by reason of a monopoly of medical privilege. This procedure has extended to well nigh every branch of business employing large numbers of persons, until many millions of just that class of the population which comes within the purview of this discussion are nearly eliminated as a source of revenue from the rank and file of the medical profession outside the selected minority.

I will only mention, in passing, that a group of influential and public spirited women in New York City are now projecting a hospital intended to be first class in its appointments and in the quality of its service which is to be devoted to the care and welfare of people of moderate means. No more significant departure in altruism could be conceived than that women should combine to apply their practical common sense to the solution of a problem which is so strongly tinged with sentiment.

There are for us to consider two great groups of persons composed, first, of the absolutely indigent; second, of that backbone of our citizenship, people of moderate means, often educated, self-respecting and well bred, whose earnings suffice the ends of decency and comfort when distributed with economy but with whom prudence demands rather careful balancing of the family budget.

Consideration of the first class may be dismissed for the present with the observation that its members should be certified by a kindly and intelligent social service organization, primed with sympathy balanced with the judgment of experience. The medical profession may well regard this class of unfortunates as not the least remunerative of their clientèle. It is our priceless privilege to give something for nothing.

The free clinic and the bedroom of the destitute are gymnasias for the strengthening

*This contribution was inspired by Dr. H. G. Wetherill's paper on "A Paramount Problem of Modern Medicine" and is an elaboration of Dr. Sewall's discussion of that paper.

of our godlike powers. The priest brings comfort to the soul of man; to the doctor it is given to relieve both soul and body.

It is with the vast class of people of moderate means that the economic relations of medical practice become particularly complex.

It may be assumed that the medical practitioner is basically a humanitarian; primarily his energies are devoted to the welfare and happiness of others. In great emergencies he stands like a ship's captain upon a sinking deck, his first and last thought for the safety of his passengers and crew. But whereas the sacrifices of the sailor are demanded only occasionally and by infrequent chance, those of the doctor form nearly a continuous performance in his career. Common sense early teaches him to conserve his energies that they may not be uselessly exhausted.

I believe that, in the long run, he would be an arch-enemy of society who, having been trained according to the modern medical curriculum, should devote his powers freely and without price to all demands upon his skill and knowledge. Pauperization is an unqualified evil. The recovered sick man is prone to believe that his own sufferings have been ample compensation for any help that has relieved them. No medical fee can be made so small that habitude would not convince the patient that his payment has been sufficient.

By and large the contingency of medical service is omitted from the family budget; countless thousands today are paying automobile installments while their long due doctors' bills must wait.

The rate of medical professional charges is uniquely characterized by the physical properties of elasticity and extensibility.

You would feel outraged if, on making a purchase in a shop, the man behind the counter charged you on the basis of his conception of your affluence. To the ordinary office visitor the doctor is only the seller of a remedy. While fee-bills have important uses, the humane practitioner rarely hesitates to cut its minimum charges; and when vital services have been performed for those of abundant means, it is right and

proper that they should be valued with consideration of the patient's affluence. A well known surgeon, replying to a protesting client, was satisfied to answer, "The rich must pay for the poor."

I hold it to be self-evident that no man has a right to expect great riches from the practice of medicine or surgery. While by talent, industry and good fortune nearly all in our profession may expect a comfortable living and to lay by a fair reserve, the accumulation of great wealth is *prima facie* evidence of business methods which on the one hand may be admirable and worthy of imitation or which, on the other, cannot withstand the light of investigation.

It seems proper to emphasize here that it is too often the reproach of the man of medicine that through laxness in business methods his old age is pained with want.

Any attempt on the part of a member of the medical profession to contribute to the solution of the problem which considers the cost of medical service should begin with criticisms directed toward his own cult. Accordingly, I will proceed to point out a mote in my brother's eye.

It is only within thirty years or less that the extraordinary development of the fundamental medical sciences has provided a mass of exact knowledge in physiology, pathology, bacteriology, biochemistry and physics which illuminates all our clinical problems and may often be applied to the diagnosis and relief of disease.

The practical medical man has not been slow to grasp these facts and in many cases, led by his own tastes, his perception of the needs of the medical profession and the public, not to say his individual advantage, has schooled himself in a field of knowledge and technique in a manner that has made his laboratory the indispensable corner stone of modern clinical medicine.

This youngest offspring of medicine is a brace of twins; one of them I call **Science**, the other **Art**. At first they could not be distinguished apart; but their individualities gradually became differentiated. **Science** is of retiring, reflective disposition, slow of mind, hesitates to express opinion and then is always ready to change it; he has no

"manner" and makes a poor impression in public. **Art** is the reverse of all this; but he has a quick, if shallow wit; he takes a thought dropped by Science and develops it into real things of use and beauty that everyone admires; it is Art that appeals to the public, that does things and makes them effective. Yet one Science could teach a myriad Arts the secrets of successful life.

See now, our allegory is founded on reality, with consequences that may have practical lessons for us. Turn to the consulting room of an internist in medicine. A patient appears, a man in his thirties who earns a salary sufficient with economy to support a small family.

Something is wrong with his health, his efficiency is dangerously diminishing. In answer to question the doctor states his fee for a diagnostic examination to be ten dollars. Examination reveals signs in the lungs which demand explanation by x-ray study of the chest. Under friendly auspices a single film will cost \$10,—a stereoscopic pair \$15.

There is found, moreover, an arthritic condition to clear up which films should be made costing at least \$10. The patient's symptoms and the condition of the thyroid gland make desirable a determination of the basal metabolism rate, obtainable at a minimum rate of \$15.

The patient is anemic and there is, moreover, a fair suspicion of latent syphilis; the Wasserman test may be had for \$10 and a histological examination of the blood for \$10. Here is a self-respecting member of society whose future and whose family's future may depend upon the verdict of the medical diagnostician. The diagnosis will probably suggest the outline of ameliorating or curative treatment; but preliminary to any treatment whatever this poor man is confronted with a demand for a cash outlay of \$60 in addition to the fee charged for the original general examination.

Now note and mark it well:—the only use of diagnostic skill and judgment necessarily demanded in the case was on the part of the physician making the original examination at price of \$10. He himself was

capable of interpreting correctly the productions of the various laboratories invoked. Every item of the special examinations could have been adequately furnished, and probably was, by a salaried female technician. One of our twins, Art, has carried out all the mechanical and technical procedures which, admirable and indispensable as they are, should, it seems to me, be treated on an essentially commercial basis, which, as regulated by competition, means that a fair profit only be charged determined by the overhead expense of production.

Far otherwise, however, is our relation to the trained laboratory expert in those numberless instances in which difficulty arises in the interpretation of the results obtained by the technician, or when the doctor who has referred the case has not himself the experience and training to fit him to translate them.

Herein the knowledge and judgment of the laboratory student make his counsel indispensable to the welfare of the patient. **Science** speaks through him and there should be no cavil at his receiving the fee of a formal consultant, though it may still be held that, as in other consultations, such fees may be modified according to various circumstances.

This function of the laboratory expert as a consultant was strongly stressed by our lamented colleague, the late Dr. Ward Burdick.

I have tried to point out what seems to me to be a just discrimination between the scientific and the technical aspects of laboratory work as it affects the financial demands upon the patients. It is obvious that a change of some sort designed for public relief is impending. The modification proposed would, it seems to me, tend to exalt the professional standing of the laboratory and result rather in augmentation than in diminution of its legitimate earnings.

A successful beginning in the administrative modification of one concrete department of clinical medicine would naturally lead to similar efforts in the broader field of general medicine and surgery.

I will not venture into this maze further

than is necessary to indicate what appears to be certain natural lines of progress.

It has long been openly complained that the so-called free dispensaries are inflicting injustice, through unfair competition, upon the rank and file of the medical profession.

Rather than enter a hopeless warfare against the existence of dispensaries, I propose that they become, to a degree, part of the armamentarium of the practicing doctor. An efficient dispensary should have access to all the means of special examinations likely to be needed by its professional staff. Indigent patients should be examined and treated free of charge. A competent department of social service should collate the social and economic data concerning all patients.

Practising physicians and surgeons should be encouraged to refer to the dispensary not only the needy sick but patients of moderate means who cannot afford the present charges for expert examination and consultation. The dispensary should charge pay patients for all laboratory work a fee somewhat in excess of that at which a private laboratory

could do the same work at a moderate profit. The dispensary should serve as a consultant without fee for the doctor who refers a patient of moderate means, and should refer that patient back to the doctor as soon as the desired investigation has been completed. Those patients who apply to the dispensary of their own volition should be charged according to their means.

Perhaps it is possible to achieve a coöperative spirit between the private and public agencies which are devoted ostensibly to the same main purpose,—and with advantage to all.

Above all it must be realized that any economic scheme that invades the field of medical service, while at the outset it may seem to threaten disaster to the fortunes of indispensable groups of practitioners, must be so conceived and administered that it shall not, at the very least, interfere with the livelihood of the honest and educated medical practitioner, nor lower the intellectual and moral standards of his profession nor diminish its attractiveness as a vocation for the brightest intellects of the community.

AN IMPROVED CLAMP FOR THE RETENTION OF BONE PINS IN THE OPEN REDUCTION OF FRACTURES

EDWARD F. DEAN, M.D.

Department of Surgery, University of Colorado School of Medicine.

DENVER

Up to the present time the clamp arrangement for the retention of bone pins in the open reduction of fractures has been put in place by the aid of a key or wrench.

The clamp for the Parkhill-Freeman apparatus has been changed so that the screws for putting the clamp in place can be set up with the fingers and securely fixed by the ordinary hemostat, or one of the bone pins.

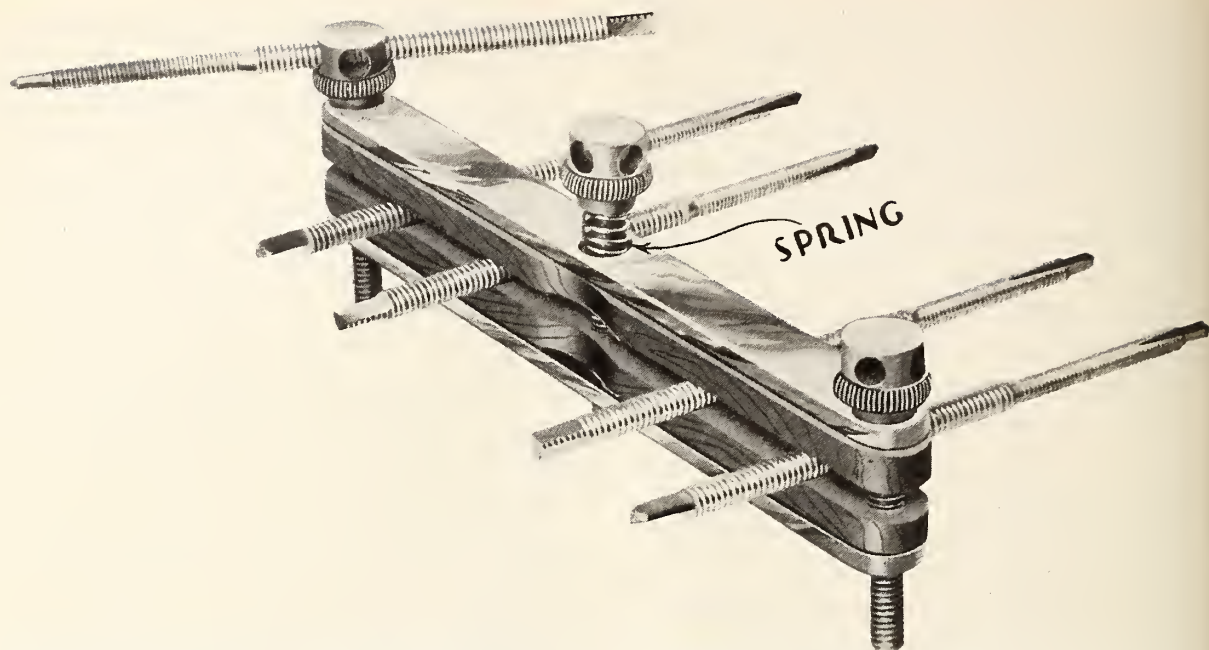
This apparatus now has been standardized so that there will be only two sizes of pins. Each set of pins consists of five in number, the length of the two sizes being the same, the difference in these pins being in diameter, the smaller pin being less diameter, at point of entrance in the bone.

The clamps are made in three different lengths. These clamps can be adjusted to place on the pins by aid of a spring between

the middle screw and the clamp side. The spring is adjustable and the clamps can be pulled apart with the fingers and slipped over the ends of the pins, and then the screw on which the spring is adjusted can be set down tight, the object of the spring being to save the holding of the clamp in place by an assistant, preparatory to setting the clamp tight on the pins. These clamps are made of non-rust metal and lined as formerly by wood to take up the irregularities in the alignment of the four pins, as well as to hold them securely in place.

All metal parts of the clamps are interchangeable so that screws and spring can be taken from one clamp and put on another.

The cut shows the clamp with four pins adjusted and the fifth pin, which comes with each set, used to set the clamp up tight. The



opening in which the fifth pin is shown in the screws can also be occupied by either a curved or straight hemostat so that wrenches or keys are unnecessary, either in placing the pins or the clamp or removing the same.

The sides of the clamp are all the same width, the three lengths of these sides being standardized to fit any case. The spring around the middle screw in the clamp can be adjusted tight or loose as the operator

sees fit in putting the clamp temporarily in place on the pins until he gets adjustment of the bone fragments. This saves time and difficulty for the operator, the important part being to adjust the fragments, which can be done after the clamp is slipped on.

The pins used in this clamp are the type described in the former article which have a drill point on the end. This simplification of the pin and clamp saves time and makes this method comparatively easy.

SUGGESTED FOOD SUBSTITUTES FOR MILK

W. V. GAGE, M.D.
DENVER

With this paper, it is neither the author's intention nor desire, to try to tell anyone, anything. He is simply hoping to be able to present a suggestion which may possibly be logical enough to allow that someone, coming in contact with a greater number of ailing children than he does, may test out the theory presented.

If a vote were taken, by this, or any other medical society, as to the non-human food substance, carrying in an adaptable form, the greatest all round nutritive value, the consensus of opinion would undoubtedly support, almost unanimously, cow's milk.

In addition, if a body of medical men were asked to select the most adaptable "natural food" for mankind, they would almost surely again cast their vote for cow's milk.

If, further, a community nurse were asked to select the best and purest food for all school children, she would undoubtedly, without hesitation, name cow's milk, as the nutrient, supreme.

A college professor, in commenting upon some of the answers turned in, in a natural history examination, stated that one of the answers to the question: What is a crab? read as follows: "A crab is a little red animal, that walks backward." The professor then complimented the author of the answer, upon the marvelous correctness of the reply which, the examiner stated, was fallacious in only three points, i. e., "A crab was not an animal, it was not red, and it did not walk backward."

A vote upon the part of the members of

all the boards of health, the world over, would probably establish cow's milk as the one food which was the most difficult to place in the hands of the consumer, in an adaptable and potable condition, when looked at from either the standpoint of degeneration because of lactic acid excess, bacterial contamination, or loss of vitamin value, because of necessary commercial pasteurization.

Boards of health would undoubtedly classify cow's milk, as the most prolific carrier and disseminator of contagious disease bacteria not only among foods, but as in a class by itself, as a disease propagator.

If produce handlers were asked to select the food item which most easily and quickly deteriorated on their hands, uncanned cow's milk would probably receive a very high vote.

Millions of tired and overworked and worried, but faithful mothers, all over the world, would probably unite in declaring that cow's milk, together with its hazy source and problematical handling before receipt, coupled with the endless meticulous care and labour connected with rendering it a fit and acceptable food for the young child, was nothing much short of a continuous "nightmare."

Bacteriologists will probably tell us that cow's milk, properly handled, is a very superior culture medium, for an extensive list of pathogenic bacteria.

Dairymen, if they will speak at all, will say that their vocation is one of the most arduous and exacting, in the matter of complying with the various state laws, as to the so-called purity of the product which they, under penalty, must deliver; and that even their best efforts must, at times prove ineffectual, in the effort to market day after day, milk of a given standard.

Books on physiological chemistry tell us that milk carries from one-half to 1 per cent of a non-nitrogenous body or compound, which is absolutely an unknown quantity. They also state not only as to the minute, but the overly noticeable differences between the milk from the udders of various animals, and cite the fact that absolutely

clean milk is only obtainable upon deep catheterization of the teat.

The offspring of a given animal is the only creature who has even half a chance to obtain uncontaminated milk from the udder of the mother animal. By direct contact with the source of supply, the milk is transferred, with small chance for contamination, directly into immediate contact with digestive juices and ferments, intended in nature to properly metabolize **that particular milk.**

To all "outsiders," animals not members of that particular family, the milk is, of course, not so adaptable, and in addition, its menace as a harmful food item, and a disease breeder and carrier, increases proportionate to the time that has elapsed since it came from the udder.

Pasteurization is undoubtedly the most logical way of rendering cow's milk at all fit for consumption, but it is obvious that conscience or lack of conscience, upon the part of the manipulator, may pitifully determine end results, rendering the resulting product either adaptable or a health menace.

We believe in the virtue of killed bacteria in certain serums, but is it not possible that many a quart of pasteurized milk, carries a killed bacteria content per c. c., that would make the advertiser of a given serum blush with envy.

Drs. George and Gladys Dick, in the December number of American Journal of Diseases of Children, state that they find up to 88,000 known and unknown bacteria, per gram of various dry milk powders examined. All the powders carried viable bacteria, including green producing and hemolytic streptococci. The Dicks conclude that "The presence of a variety of living bacteria, including streptococci, in preparations of powdered milk, indicates that the methods of manufacturing do not destroy the bacteria in the milk and that the bacteria remain viable in the powder.

Here is what Kellog has to say: "Within the last few years, much evidence has accumulated to the effect that cow's milk is by no means the specially wholesome human nutriment, that it was once supposed to be. Bunge, the great physiologist, goes so far as

to assert that thousands of children are annually killed by the feeding of cow's milk; and many persons have learned, by their own observations that cow's milk does not agree with them, for in many human adults, it appears to behave almost as a poison."

C. H. Chalmers, writing in the *Journal of Hygiene*, for March 28th, under the title, "A Study of Coli-form Organisms in Samples of Certified Milk," states that "Of 268 coli-form organisms, isolated from thirty-two samples of Certified Milk, 65.7 per cent fell within the true coli group."

The problematical content of any sample of milk, derived from any source, should give us pause, to say the least, in the selection of milk for hypodermic injection, when we wish to obtain foreign protein results, in eye infections, and various other pathological conditions.

All the above statements being more or less true, it should occur to us to question the advisability of continuing the grueling and excessively expensive and unsatisfactory struggle we are now carrying on, in our efforts to compel cow's milk, the most treacherous fluid extant, to become adaptable to the needs of a food for infants and children.

Just as we have come, with scant reason, to call the collection of symptoms made up of "running nose," and inflamed eyes, and harsh cough and general inanition, "Catching cold," so we have, for a like number of years, referred to cow's milk, as a "natural food" for human beings.

Is it not unfair and illogical, to refer to any metabolic product, manufactured by any gland or tissue or organ of any animal, as a substance which is "natural" to the tissues of any other animal, not the offspring, or at least of the same species, as the animal producing the secretion?

The refinements which lately have been adopted, regulating blood transfusions in human beings, illustrate the vast basic difference in the circulating fluid, of individuals of the same species. This being the case, what a vast gap there is to fill, in accommodating any secretion of any animal, to the metabolic needs of another animal.

The reaction of various susceptible individuals to horse serum, well illustrates this.

The chromosomes, and all the other various bars, which nature has put up in the way of cross-fertilization, should certainly give us serious thought.

The milk of every animal, is especially fabricated for the meeting of the first needs of the offspring of that animal, and a body fluid which is intended, in one animal, for instance, to aid in the anabolism of tissue, which shall, as in herbivora, eventually lead to the production of hide and horns and hoofs, could hardly logically be expected to get back of tissue changes which would eventually culminate in the fabrication of claws and fangs and names, such as are found in the carnivora. The building material **must** be different, and differently elaborated, in the two instances.

A wolf, it is true, mythologically suckled Romulus and Remus, and many children have come through childhood on cow's milk, but the first instance is a fairy story, and we have not reached the point where we are in a position to judge as to how much damage has always been done the human infant by cow's milk, i. e., how much better the child could have become without it. We do know that thousands of children cannot take cow's milk successfully, unless it has been variously "modified," and that other thousands cannot metabolize it at all, regardless as to how either the child or the milk, be manipulated.

We also know of innumerable instances where adults resent cow's milk, up to the point of serious illness where milk is exhibited.

Asses' milk, or goat's milk or cow's milk, each lays the foundation for the successful production of an entirely different assemblage of cells than are needed in the building of tissues in the bodies of our offspring, and this fact is macroscopically and microscopically testified to, in the habits, form, environment, accessory organs, tissue structure and blood picture, given by the various animals. Bodily odor, as demonstrated in at least one of these animals, is almost a "thus far, and no further" command.

Argument, either for or against a given proposition, is now, and always has been, the most ridiculous and enemy making and non-productive indoor sport extant. Argument regarding a proven fact, is impossible. Argument in support of a fallacy, is worse than a waste of time. Test, is the big item, which at once renders argument supremely superfluous. Galileo proved this when, in 1620, he dropped the two weights from the Leaning Tower at Pisa.

Today our animal experimental laboratories are demonstrating the necessary salt and vitamine content of foods by the simple expedient of feeding the food in question to laboratory animals, and then checking the results obtained.

I am hoping that the suggestions which follow may be tested out clinically under the jurisdiction of those more able than I, in the handling of infants and children, I am willing to stand or fall, regarding my belief in this matter, by the results which may be obtained.

Inasmuch as cow's milk, in the light of what has preceded, can hardly be classified as a "natural food" for the offspring of human beings, and also because of the fact that milk preparation requires a care which must be overly meticulous, in order that even "near results" as to food perfection may be obtained, and also that the milk handling of today, requires an expenditure of time and money, far out of proportion to the value of the food material fabricated, why should it not be wise and logical, to suggest a substitute which test might prove to have all of the advantages of milk, with none of its drawbacks.

The salts and vitamins, contained in a sample of cow's milk, which is really bacteria free, and fit for food, it must be remembered, are all "second-hand," being, of course, originally found by the animal which furnishes the milk, in "the green herb of the field"; therefore, it would seem that the obvious thing to do, would be to go to the original source, and get the salts and vitamins needed for infant body building, directly from "the green herb of the field."

Because of the fact that all the needed nutrient materials for child nourishment

may be found in sufficient and exact quantities in grains and fruits and vegetables, and also because that, when so found, they may be fabricated with little trouble and expense into sterile and comparatively bacteria free solutions, why should we not test their possibilities, as ideal foods for infants and children.

Two solutions only, need be made, both of which would, when properly handled, of necessity be immeasurably cleaner and freer of bacteria, than could be the best sample of cow's milk, now obtainable.

The first solution would be made by extracting by boiling, the nutritive values of either crushed whole brown rice, or crushed whole wheat, the strength of the solution depending upon the age and general needs of the child in question.

The second solution would be made by cooking together, for from one to two hours, a chopped mixture of tomatoes, celery, spinach, carrot and thin potato peel, one-half pound of each except spinach and thin potato peel, which should be one-quarter pound each, to make one quart of solution.

Both grain and vegetable solutions should be strained through wire, bottled, stoppered with cotton wool and placed upon ice until needed.

According to the given case and its needs, these solutions could be fed separately or combined, and in dilutions and proportions which were suitable.

If to the above were added the giving of cod liver oil and orange juice, it certainly seems that the needs of the average child would be supplied, and in any event, the results obtained should compare favorably with many which we have all been forced to accept, even at times when we have exerted ourselves to the utmost, in trying to compel cow's milk to acquiesce to the needs of a given patient.

In addition, we could rest assured that our little patient, would not have, in addition to combating disease, to unsuccessfully try and metabolize a host of colloidal proteins which are to be found in the bodies of billions of unknown dead bacteria, forming part and parcel of pasteurized cow's milk.

My reasons for suggesting the food com-

binations referred to, as a substitute for milk, are based upon what I have found to be superior liquid foods in the handling of the adult sick, and it seems logical to me to believe that properly combined and modified, according to the needs of a given child, these vegetable and grain extracts might prove of great nutritional value and in addition, carry none of the bacterial menace

which must, almost of necessity, go with the exhibition of cow's milk, however it is handled.

Inasmuch as my work is confined to the handling of adults, almost exclusively. I am hoping that men who are giving their attention to diseases of children, may test out the possibilities of the food combinations suggested.

NEWS NOTES

The annual meeting at Colorado Springs was of unusual success as is attested by the following statistical data.

Registration

Denver	194
El Paso	81
Pueblo	29
Boulder	14
Fremont	12
Larimer	9
Other County Societies	39
	378
Visitors from Colorado	24
Visitors from other states	29
Total Registration	431

Other States Represented

Texas	1
California	1
Minnesota	5
Oklahoma	3
Missouri	4
Illinois	5
Pennsylvania	1
New York	2
Nebraska	2
New Mexico	1
Louisiana	1
Wyoming	1
Indiana	1
Arizona	1

The following officers were elected:

President, Samuel B. Childs, Denver.

President-elect, William Senger, Pueblo.

Vice-presidents, 1st, W. M. Shultz, Central City; 2nd, T. R. Knowles, Colorado Springs; 3d, F. E. Willett, Steamboat Springs; 4th, O. P. Shippey, Saguache.

Secretary, F. B. Stephenson, Denver.

Treasurer, L. W. Bortree, Colorado Springs.

Delegates to the American Medical Association: Senior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929; Junior, J. W. Ames, Denver, term expires 1930; Alternate, L. H. McKinnie, Colorado Springs, term expires 1930.

Councilors:

Term Expires

Dist. 1. Ella A. Mead, Greeley	1930
Dist. 2. G. P. Lingenfelter, Denver	1929
Dist. 3. George D. Andrews, Walsenburg	1933
Dist. 4. W. W. Crook, Glenwood Springs	1931
Dist. 5. A. W. Robbins, Durango	1932

Dr. T. E. Carmody has returned from an extensive trip in Europe, where he visited clinics in England, Germany, France, Switzerland and Denmark. He attended the First International Oto-Rhino-Laryngological Congress in Copenhagen, and read a paper on "The Development of the Nasal Accessory Sinuses."

Doctor John R. Ranson, former associate of Doctor Sanford Withers, has accepted the position of Chief Radiologist to the Good Samaritan Hospital in Portland.

William West Grant

All grant that they love the Grant who enchants, Nam'd William, which means 'Life's Protector.' West—destined Denver, the sphere for his skill, Fortunate those who have met their loved Bill First surgeon, as appendix dissector.

Gallant Grant! Best of Caduceus transplants. Life's twilight halo, our lot and his. Ah! The West is bereft, many friends are left, But the South regains the Grant, who's so deft. Man, merg'd with medicine and with God. Mizpah!

—G.B.W.

The above lines were inspired by a banquet given in honor of Doctor W. W. Grant at the University Club, September 19, 1928, by approximately seventy-five of his confreres and friends. The program was one of extraordinary interest with appropriate toasts responded to by Senator C. S. Thomas, Doctor H. G. Wetherill, Mr. Tyson S. Dines, Doctor J. W. Ames and Doctor W. W. Grant.

WOMEN'S AUXILIARY NOTES

Members of the State Auxiliary are unanimous in their praise of the Colorado Springs unit for the delightful and varied program of the recent annual meeting.

Both the social and business arrangements were splendidly planned and executed which made for the most successful meeting since the organization of Colorado Auxiliary.

To Mrs. Morrison, the retiring president, the entire membership is grateful for her services and leadership.

A hearty welcome is extended to the new president, Mrs. George W. Miel, as she assumes the office for the coming year.

The new officers elected are as follows:

President, Mrs. George W. Miel, Denver.

Vice President, Mrs. W. A. Kickland, Ft. Collins.

2nd Vice Pres., Mrs. Samuel B. Childs, Denver.

3rd Vice Pres., Mrs. George Darling, Durango.

4th Vice Pres., Mrs. B. F. Blotz, Rocky Ford.

Recording Secretary, Mrs. T. R. Knowles, Colorado Springs.

Corresponding Secretary, Mrs. George B. Kent, Denver.

Treasurer, Mrs. L. E. Likes, Lamar.

Auditor, Mrs. W. K. Reed, Boulder.

Parliamentarian, Mrs. J. N. Hall, Denver.

Chairmen of Committees

Educational, Mrs. Frank B. Stephenson.

Hygeia, Mrs. Maurice Rees.

Membership, Mrs. R. G. Smith.

Publicity, Mrs. Bernard Yegge.

Denver unit opened the year with an unusually fine meeting on September 17th.

Mrs. T. Mitchell Burns, president, gave a brief talk on plans for the work and urged the support and suggestions of all members.

Mrs. E. H. Peterson gave a report of the State Meeting.

Mrs. M. Krohn, accompanied by Mrs. Harry Berry, gave a delightful group of soprano solos after which Mrs. K. D. A. Allen gave a reading.

CORRESPONDENCE

August 31, 1928.

Philip Work, M.D., Secretary-Treasurer State Board of Medical Examiners, Denver, Colo.
Dear Doctor:

In reply to your inquiry of August 29th, would say that I am sending you a copy of our Medical Practice Act and Basic Science law, which covers the annual registration act, which we enacted last year.

I wish to say that this annual registration is one of the finest things that ever happened to us. We have been able to locate and register most all of the doctors who hold licenses to practice in Minnesota, and it gives us a registrar which is up to date of those who are legally licensed to practice in the state.

Would say also that we mail out to every physician in the state a copy of this registered list, with a request to inform our office of anyone who is not recorded, so that we may investigate them and see if they are illegitimate practitioners or not.

It has also provided us with funds from which we are able to investigate and prosecute illegal practitioners which we were never able to do before in like manner.

I would say by all means get this law through if you can.

If there is anything further we can be of service in, please write me and I will be glad to do anything possible. Sincerely,

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS.

A. E. COMSTOCK, M.D., Secretary.

COLORADO ADMITTED INTO BIRTH REGISTRATION AREA

During last quarter of a century most of the states, including Colorado, have been in the registration area for deaths and with few exceptions the states have for a number of years been in the registration area for births. As a matter of state pride, if for no other reason, Colorado could not afford to remain out of the approved area.

It is by reason of the indifference and disregard for the law shown by a few physicians and midwives that some states, including Colorado, have

remained out of the registration area so long and refused admission by the U. S. Census Bureau. At this time four or five states still remain out of the approved area. Several months ago a drive was begun by the State Board of Health for the purpose of bringing about satisfactory birth registration. The government showed its great interest by sending help into our state and joined heartily in the propaganda. After some months of earnest work throughout the state for the purpose of establishing satisfactory cooperation of physicians and others in the reporting of births, the secretary of the State Board of Health requested the government to investigate the efficiency established. The investigation resulted in the admission of Colorado into the birth registration area by the government, August 24, 1928.

The five hundred thousand reports of births and deaths in care of the State Board of Health and kept in a fireproof vault constitute a valuable asset of the state. Hereafter the government will make and file in Washington copies of all birth and death reports. All reports found quite incomplete and illegible must be returned to be corrected by those responsible for the irregularities. The state treasurer receives about \$150 monthly from the State Board of Health on account of fees collected at one dollar each for certified copies sent to all parts of the world. These certified copies are by law accepted as prima facie evidence in court. The efficiency of reporting births and deaths would be greatly increased if physicians, midwives, coroners and undertakers would make reports as nearly complete as possible and always legibly written.

The reasons given by the government for properly reporting all births are as follows:

Why Births Should Be Registered

There is hardly a relation of life, social, legal, or economic, in which the evidence furnished by an accurate registration of births may not prove to be of the greatest value, not only to the individual but also to the public at large. It is not only an act of civilization to register birth certificates but good business, for they are frequently used in many practical ways:

- (1) As evidence to prove the age and legitimacy of heirs;
- (2) As proof of age to determine the validity of a contract entered into by an alleged minor;
- (3) As evidence to establish age and proof of citizenship and descent in order to vote;
- (4) As evidence to establish the right of admission to the professions and to many public offices;
- (5) As evidence of legal age to marry;
- (6) As evidence to prove the claims of widows' and orphans' pension law;
- (7) As evidence to determine the liability of parents for the debts of a minor;
- (8) As evidence in the administration of estates, the settlement of insurance and pensions;
- (9) As evidence to prove the irresponsibility of children under legal age for crime and misdemeanor, and various other matters in the criminal code;
- (10) As evidence in the enforcement of law relating to education and to child labor;
- (11) As evidence to determine the relations of guardians and wards;
- (12) As proof of citizenship in order to obtain a passport;
- (13) As evidence in the claim for exemption from or the right to jury and military service.

S. R. M.

WYOMING MEDICINE

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EDITOR:

EARL WHEDON, M.D., Sheridan, Wyoming

EDITORIAL NOTES AND COMMENT



F. A. MILLS,

President-Elect of the Wyoming State Medical Society

Dr. F. A. Mills was born in Osborn, Kan. After graduating from the local schools he entered the profession of teaching which he later abandoned to enter business. This, however, soon lost its charm which was abandoned for the study of medicine. He was graduated from the Medical Department of the University of Kansas in 1907. He took up the practice of medicine near his home in Kansas but later moved to Oklahoma. He did graduate work at the Medical School of Northwestern University in 1915-1916. Temporary ill health led him to come to Wyoming where he has since practiced, having now become permanently located at Powell. He has always been interested in medical organization, having been an active member in the various county societies where he has practiced. This has

led him into the activities of the Wyoming State Medical Society to the presidency of which he was elected by unanimous vote of the House of Delegates at the Wyoming Section of the Tri-State Medical Meeting. His interest in public health, medical organization and civic matters generally guarantees to the Wyoming Society a successful administration.

"THE SONG IS ENDED BUT THE MEMORY LINGERS ON"

That expresses our idea of the recent Tri-State Medical Meeting in the Yellowstone Park.

To attempt to record for others who were not so fortunate and who did not attend would be beyond our command of the English language. There was something running all along from the time you started for the park until you arrived home that was different; something so hard to explain, a feeling that you can only experience and which cannot be explained. It might be likened to the sensation you experienced when you first attended medical school. There was, however, a different side light which we might classify as acquaintance, or at least a partial understanding of the subjects under discussion. The first year medical student knows nothing of the subject matter to be discussed by his teachers, but at this meeting we felt that we had a partial understanding to start with and that these great teachers were to further help us on our ways. And we were not disappointed. These great teachers, specialists, surgeons and

medical men came to us and gave us their best freely and without price.

Surely the attention that was given their lectures and the keen interest shown is the real expression of our appreciation of their sacrifice.

"The song is ended but the memory lingers on," and surely there was not a member of the Idaho, Montana or Wyoming societies who attended who is not today a better doctor for attending the Tri-State Meeting.

To the management of the Yellowstone Park Hotel, and especially to H. B. Brown, the general superintendent, and R. W. Larritt, the manager of the Canyon Hotel, we all owe a debt of gratitude for the splendid treatment we enjoyed. They extended every courtesy and provided us with every convenience to make our meeting a success and our stay pleasant.

The societies of Idaho and Wyoming voted to hold their 1933 meetings as a joint Yellowstone Park meeting, such as we have just enjoyed. The Montana Society has not yet definitely decided because they felt that five years from now was a long time, but Idaho and Wyoming have so enjoyed this meeting that there was no question about our desires for 1933.

We have been given to understand that there may be built long before that time a larger hotel, especially equipped for conventions and every need met for such gatherings, and even if there should be no better place for holding such a meeting than we were so fortunate in having, we want to all meet again and enjoy such treats as we had at our first Yellowstone meeting.

Frankly, if the beautiful palace we met in were destroyed by fire, and if under some great tree, but with the surroundings of the park as a background and the same high class teachers as instructors, we would be happy and glad that we could be permitted to attend.

And again to our wonderful visitors and teachers, and to Dr. Fishbein, who secured so many of these leaders of the profession, we extend to you our heartfelt thanks for your kindnesses.

E. W.

BETRAYAL OF CONFIDENCE

Aside from the loathsome and penetrating odor of the American skunk, it is a very charming animal. Its beautiful fur markings and its habits of life, when undisturbed, are very attractive, but its odoriferous method of defense sets it apart as a feline to be feared and shunned.

We found such a creature at the Yellowstone Park Meeting, but it was not the neat little black and white animal of our boyhood days. It appeared in the form of a big man in avoirdupois but a skunk in disposition.

Invited to present a paper as an honored guest, one of the speakers appeared and was given the attention he deserved. Then he reverted to type. The air has ever since fairly reeked with his evil smelling odor. He rushed to some inexperienced or palm itching son of the pen who broadcasted, through the Associated Press, ideas he never dared express in the Tri-State Meeting. Apparently he was their author. The Rocky Mountain region was flooded by his self praise. He made no new discoveries but tried to make an advertisement of his appearance on the Tri-State Program. Such unethical conduct is its own condemnation.

E. W.

National Tuberculosis Association Awards Medal

At the recent annual meeting of the National Tuberculosis Association held at Portland, Ore., Dr. Eugene L. Opie of The Henry Phipps Institute, Philadelphia, was elected president for the coming year. Dr. Ray W. Matson, Portland, Ore., was elected vice president.

The new executive committee members are Dr. Kendall Emerson, Dr. Linsly R. Williams, Dr. Alfred Henry, Robert G. Paterson, Fred M. Stein, Dr. Leroy S. Peters and Dr. Henry Boswell.

The Trudeau Medal, awarded each year "to that individual who has made the most meritorious contribution on the cause, prevention or treatment of tuberculosis," was awarded to Sir Robert W. Philip, H.A., M.D., of Edinburgh, who started the first tuberculosis dispensary in Edingburgh in 1887 and developed the "Edingburgh System" of tuberculosis control, the model for similar schemes under the British Health Insurance Act. This is the first time this medal has been awarded to a foreign physician.

The next annual meeting of the Association will be held the week of May 27 at Atlantic City, New Jersey. Headquarters will be at the Hotel Chelsea.—Health News.

A Sweet Singer

Lady: "The doctor told me emphatically that I must not sing this evening."

"Why, is he going to be at the party?"—Megendorfer-Blaetter.

PRESIDENTIAL ADDRESS*

A. P. KIMBALL, M.D.

SALT LAKE CITY, UTAH

It gives me a great deal of pride and gratitude to appear before you today in the position of honor as your president, considering the fact that I moved out of your state during my term of office. My heart is with you in all your endeavors, not only in this splendid meeting, but in all your future gatherings; but more than this, it is a particular pleasure to meet in this beautiful Yellowstone National Park with our neighboring state societies of Idaho and Montana.

The Wyoming State Medical Society feels that we owe a debt of gratitude to those doctors who have come here to give us the fruits of their endeavor in their respective specialties. We sincerely hope that they have enjoyed being with us on this occasion as we have been thrilled at listening to them. I sincerely hope they will go back to their respective homes knowing in their hearts that we in the middle West are grateful to them for the splendid program they are giving us. We also are keenly appreciative of Superintendent Albright's kindness and many favors shown us. Rest assured that we will in years to come remember you with kindest regards and with gratitude for your share in helping us in this Tri-State Meeting.

This is the first meeting of this character in this region, and of that I wish to speak at this time. We are organized as state societies to promote the science and art of medicine and to further public health. It is our purpose to seek out the unknown things of these specialties and to carry them home for our individual betterment which collectively will raise the standards of the practice of medicine and surgery throughout these middle western states. Banded together as three states in this meeting, it has shown us that we are on the eve of development, provided we make provisions for continuing and possible increasing the number of states in these meetings. Each year that they are held, their scope will be broadened as conditions of such meetings demon-

strate possible and practicable. I would suggest that we hold one of these Tri-State Meetings every three years. I am sure that those of us who have been privileged to be at this meeting and to listen to those wonderful instructive talks in the various specialties of medicine cannot help to boost for another meeting of like character to be held in our sister states of Idaho or Montana in the near future.

I deem it a privilege to be a physician of today. I am glad my son has chosen medicine as his life vocation, not because his father is a doctor, but of his own free will in the matter. I do not believe there is any nobler profession than that of medicine. No other profession requires the charity, the human sympathy, understanding and tolerance which our profession requires. What a wonderful feeling it is to watch the seriously ill regain health!

To those of you who daily render service with the scalpel and hemostat, what a wonderful sensation it is to do an ultra-surgical piece of work and to realize the possibilities of our noble profession. It is to realize how inadequate we all are to meet those obligations. To those who do surgery without proper study and preparation what a night of remorse is in store for them. What a compensation it would be to know that you have done everything possible for that patient, rather than that you have done that patient an injustice that cannot be undone. What a charm it is to watch a real, scientific, surgical procedure. When we realize that it is within the province of us all to attain the same ideas, the same technique, and the same results, careful study of the subjects and meetings such as these are their own justification. Therefore we should do our utmost in furthering such meetings. If we do not, we do ourselves a grave injustice, especially when we know that we can obtain talent such as we have for this meeting.

The research men are so constantly adding to our store of knowledge that our minds are fairly swamped in our efforts to sift the wheat from the chaff. Especially is this

*Delivered before the Tri-State Meeting, Idaho, Montana and Wyoming State Medical Societies, August 27, 28, 29, 1928, Yellowstone National Park.

true of the general practitioner in the small town who is so busy that he cannot go to the medical centers to take graduate work. To these men, this meeting should be of an inspiring character in that they will take time to take graduate work and also attend his local society more faithfully. These wonderful meetings always create an unrest in me, in that I go home with the idea of studying still harder than ever and also of attending more meetings of like character whenever possible, a desire to do better work and to avail myself of similar opportunities in the future.

At this time I wish to speak of something we are all prone to overlook in our daily work. This is, "Inspiration Therapy." No man should be permitted to deal with human bodies and minds simply on a basis of his knowledge of Materia Medica or Surgery. He should have an equal knowledge of Psycho-Therapy, or else he is bound to be inefficient. The most dangerous "quack" in the world is the one who pours needless drugs into people or carves them up because he knows he can get a fat fee for doing an unnecessary operation. The same condition exists when the surgeon knows that the patient is being rushed to him by someone looking for a split fee, whether the patient needs the operation or not. Thousands of physicians, ignorant of the laws of the mind, kill people with negative suggestions. No doctor should ever tell a patient he can live only a few months. Hope is a great physician, and the doctor who kills hope will also kill the patient. This is psychic murder. Thousands of men and women told that they could not live, have gone out into the world and learned the laws of life, and outlived the physician who prophesied their death.

The average physician is a sincere, earnest servant of his fellows, faithfully seeking to alleviate human suffering. He remains in obscurity and at times in poverty, rather than commercialize medicine. A large number of these patients are mental negatives instead of mental positives, and instead of breathing deeply, exercising every day, sleeping with all the windows open, keeping clean inside and out, eating wholesome food,

they fall prey to every disease suggested to them.

They were called neurasthenics in the olden days. They have many different subdivisions now, depending on the honesty and integrity of the physician to whom they apply for relief. I am sure as I gaze over this audience today I can be glad and proud to be one of you, as I know most of you and know you for your honesty, integrity and uprightness in the treatment of those who apply to you for help in their mental as well as physical ailments.

The raising of the medical profession from commercial quack grafters to the plane of real honest service to our fellow men, is more of an issue today than it ever has been. Barnum was absolutely correct in his viewpoint of the people as a whole, but we deal with life and with death and our profession should try to purge itself of those who try to drag it down by unscrupulous methods.

One of the fondest hopes cherished by Secretary Whedon and me was to increase the number of local societies in our state. I am afraid it has not been realized. We drove nearly a thousand miles in pursuit of one of our hopes, but no evidence of awakening has so far been apparent. I sincerely hope that this condition may be speedily changed.

Please allow me to take this occasion to acknowledge my appreciation of the very high compliment and distinctive honor of being elected president of our Society and allowed to continue as such even though I moved from your midst. To say that it is definitely the greatest and most appreciated honor of my life is to put it mildly. No one could review the roster of men who have served as my predecessors and not feel a just and pardonable pride on being given the office.

In connection with this expression, I must say that my duties through the year have led me to analyze more thoroughly and appreciate more deeply the merits of our organization. There is one man in our organization not only known to us Wyoming men, but to all present. He is one of those quiet, soft-speaking men, nevertheless he is deserv-

ing of our greatest admiration and appreciation, not only for the fact that he is responsible for this meeting, but for the fact that he has been secretary of this Wyoming State Medical Society for the past ten years. I refer to Dr. Earl Whedon.

He is also responsible for our Medical Defense Fund, which is growing very rapidly. It is not so much the financial returns which a physician may receive, provided he has a malpractice loss, but the defense idea has practically eliminated suits of this character from our state, owing to the fact that it has drawn physicians of our state into a single unit, thereby creating the lack of support for any layman starting a malpractice action. In other words, instead of physicians of our state encouraging lawsuits against our brother practitioners, the reverse is true. Neighboring states would do well to incorporate the same Medical Defense Fund. Closer co-operation of brother practitioners, as mentioned by Dr. Barclay and Dr. William Mayo, is of vital importance to every practitioner, regardless of personal feelings.

Through physical examinations, honesty and integrity, along with conservative measures (unless radical procedure is absolutely necessary), co-operation to the fullest extent with our brother practitioners, will raise the practice of medicine to such an extent, that our cults will eventually be eliminated.

NEWS ITEMS

Dr. V. J. Keating and family, formerly of Sheridan, have now located in Los Angeles, Calif. Dr. Keating closed up his Sheridan office and home last June and visited in Chicago and the western coast country before deciding on his new location. Late in June he was given a farewell dinner by the members of the medical and dental professions and the druggists. The doctor is a past president of the Sheridan County and State Medical Societies. He had a large general practice covering a period of several years, and was one of the leaders in the effort to standardize our hospital and organize a staff. The good will of the medical profession and public go with Dr. Keating and his family in their new home.

Dr. E. R. Crowder and Dr. Paul S. Reed are the newest members of the Northwestern Wyoming Medical Society. They are located at Worland.

Dr. J. W. Gorder of Greybull, Wyo., was elected

secretary-treasurer of the Northwestern Wyoming Society, to succeed Dr. Fred Gassman, who resigned this office, as he was going to move to California.

At the Yellowstone Tri-State meeting, held August 27, 28, 29, Dr. F. A. Mills, president-elect, became the president of the Wyoming State Medical Society. Dr. J. L. Linn of Lander, president-elect; Dr. C. W. Jeffrey of Rawlins, vice president; Dr. Evald Olson of Lovell, re-elected Treasurer; Dr. Earl Whedon of Sheridan, re-elected secretary for the tenth time; Dr. George P. Johnston of Cheyenne, delegate to the A. M. A.; Dr. J. H. Holland of Evanston, elected alternate; Dr. H. L. Harvey of Casper, elected councilor for three-year term. The medical defense committee consists of Dr. Fred Horton of Newcastle, Dr. George L. Strader of Cheyenne and Dr. Earl Whedon, secretary, Sheridan. The council appointed Dr. Earl Whedon as editor of our part of Colorado Medicine for the year 1929. In the December number of Colorado Medicine the minutes of the meeting of the House of Delegates and the officers reports will be printed in full.

The Women's Auxiliary of the Wyoming State Medical Society held several very interesting meetings at the Tri-State meeting in the Yellowstone park. Mrs. Fred Horton of Newcastle, the president, presided in her usual gracious manner. The wives of the Idaho and Montana doctors were invited to meet with the Wyoming ladies and the Idaho ladies, after conferring with the other ladies, decided to organize an auxiliary for the Idaho State Medical Society. The Montana ladies expect to renew their old organization, which, at present is sleeping, if not dead. The new officers for the Wyoming Auxiliary are: Mrs. Earl Whedon of Sheridan, president; Mrs. Evald Olson of Lovell, president-elect; Mrs. F. A. Mills of Powell, vice president; Mrs. J. L. Linn of Lander, secretary; Mrs. C. W. Jeffrey of Rawlins, treasurer. Eight new members joined at the Yellowstone park meeting.

Dr. and Mrs. J. R. A. Whitlock of Powell, Wyo., are making a six weeks' trip East, expecting to visit several of the larger clinics en route. At last report they were still in Rochester, Minn.

Dr. and Mrs. W. A. Graham of Powell, Wyo., are expected home soon from a trip to the western coast. They have reported a very enjoyable time, resting and sightseeing. They expect to touch Canada on their return if weather permits.

Dr. F. A. Mills, health officer, is making report to the State Board of Health of an epidemic of acute illness, effecting most of the children of the community and a small percentage of adults. Disease appears suddenly with severe pain along rib margin, in diaphragm, causing difficulty in respiration, often more pronounced on right than left, suggesting gall bladder or appendix involvement. Temperatures rapidly mounts to 102 or 103 degrees. Constipation, with evidence of mild intestinal indigestion is the rule, less than 5 per cent having diarrhea. No gastric disturbance. Severe frontal headache, often accompanied with dizziness. Only few cases complain of general bodily aches. Practically all cases show a more or less extensive pharyngitis, with little or no local tenderness of the throat. Few cases show isolated red patches scattered over throat. While most cases yield to treatment within two or three days, probably 10 per cent show evidence of a more protracted course of one week, with little prostration, continued fever and neuritic pains.

BOOK REVIEWS

The Collected Papers of the Mayo Clinic and the Mayo Foundation for 1927, Volume XIX. Edited by Mrs. M. H. Mellish and H. Burton Logie, M.D. Octave volume of 1,330 pages with 412 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, \$13.00 net.

The nineteenth volume of collected papers make its welcome appearance in medical literature. As in previous volumes the material has been selected from papers written by members of the staffs of the Mayo Clinic and the Mayo Foundation to meet the interest of the general surgeon, and the diagnostician. The papers of interest to the greatest number are printed in full; those in more limited fields of medicine are abridged or abstracted; and those in special fields are indexed according to the Journal reference. This arrangement is quite suitable for all. Those interested in detail may consult the original, reference to which is given.

The contents of the book is divided into the following: (1) Alimentary tract; (2) Urogenital Organs; (3) Ductless Glands; (4) Blood and Circulatory Organs; (5) Skin and Syphilis; (6) Head, Trunk and Extremities; (7) Chest; (8) Brain, Spinal Cord and Nerves; (9) Miscellaneous. This arrangement makes for convenience in reading on any given subject.

A great deal of the volume is devoted to diagnosis, and the treatment of the subjects under consideration.

Tremendous impetus has been given to the study of the liver and bile ducts in the last few years, and judging from the space given to this subject in the volume under discussion, the authors have contributed their share to further our knowledge in this most interesting field of study.

The papers relative to the blood and circulatory organs are especially interesting. The surgical procedure in obliterative vascular disease is worthy of study. Focal infection and elective localization of organisms receive the space and study which that subject deserves. The urogenital organs, ductless glands, head, brain, spinal cord, are given major consideration.

By reading and absorbing the papers in this volume the student of medicine and surgery may feel that he is well up-to-date as to the current progress in our profession. G. B. K.

Muscle Function. By Wilhelmine G. Wright, Boston, with a Foreword by J. Playfair McMurrich, Professor of Anatomy, University of Toronto. Paul B. Hoeber, Inc., New York, 1928. Price, \$3.50.

The author of this book was closely associated for several years with the late Dr. Lovett, the eminent orthopedic surgeon of Boston, under whose direction she had a very extended experience with infantile paralysis cases as well as in the treatment of other functional and organic disabilities of the muscular system. In this work, after considering the general principles of muscle action, the author takes up the function of each muscle in connection with that of the group to which it belongs from an anatomical and physiological standpoint, her experimental findings being at times at variance with other workers along this line, such men as DuChenne, Beevor and Sir Arthur Keith.

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H. W. W.

Gonococcal Urethritis in the Male for Practitioner.

By P. S. Pelouze, M.D., Associate in Urology and Assistant Genito-Urinary Surgeon at the University of Pennsylvania; Fellow of the Philadelphia College of Physicians. Illustrated. Cloth, \$5.00. Philadelphia and London: W. B. Saunders Company, 1928.

This book on the diagnosis and the treatment, not only of gonococcal urethritis, but of the complications thereof, and dealing with other urethritides, should fill a long-felt want, not only for the practitioner, but as well for the student of medicine and for the urologist. Written in an entrancing manner and in language which is clear, it deals with a subject which has to be dug out of the ordinary textbook on urology from various parts thereof. The book is divided into two parts. The first part deals with the etiology and pathology of the disease and with the complications which arise. The anatomy and physiology have been simply dealt with and made clear so that the complications may be understood. The treatment of the disease in its various stages is taken up in proper order, as is the treatment of the complications. It is made clear that one must not expect to find a specific drug to cure the disease, and the value of the drugs and methods used is well considered and the actions of such drugs and methods are discussed with what seems to the reviewer an unusual clarity. The gonococcus, its cultural and staining characteristics, and its biologic traits, are dealt with in language which the medical student can appreciate and which at the same time leaves nothing unsaid to the deepest student. Chapters on prophylaxis, hygiene, oral medication, methods of injection and instrumentation may be found in this first part, together with rare and rarely considered conditions sometimes occurring.

In the second part of the book the author has endeavored by a recital and analysis of case records to correlate, in the mind of the reader, the first part of the book with actual practice, in order that the entire volume may be of greater value. In this attempt he has succeeded unusually well, so that the work is really a book of reference to any one who wishes to use it as such.

When it is considered how little the average student learns in medical school of the treatment of this disease, and how little the untrained mind is able to dig out of the usual textbook on urology, the value of this work will be appreciated. The reviewer has added a copy to his small library and a copy may be found in our library of the Medical Society of the City and County of Denver.

WILLIAM M. SPITZER.

"Know how to keep a horse from drooling?"

"No. Howzit done?"

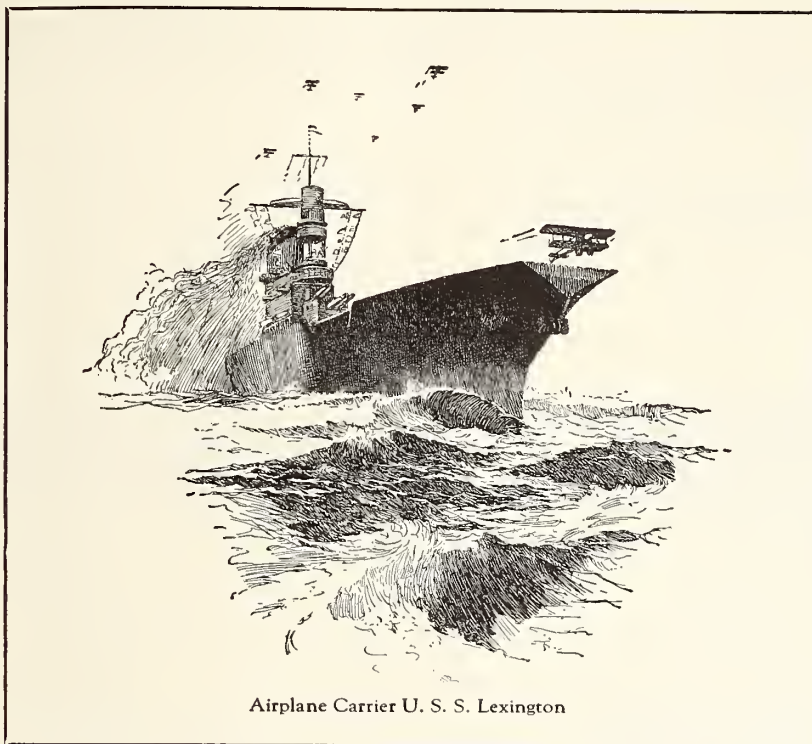
"Teach him to spit."—West Point Pointer.

Eve: "My child, don't your legs get cold in those thin, silk stockings?"

Daughter of Eve: "Yes, but you can't pull the wool over men's eyes."—Ohio State Sun Dial.

Mrs. Hickson: "Before we go to the ball I want you to remember that it's the custom to dance the first dance with your wife."

Mr. Hickson: "Well, wind the phonograph. We'll dance it right here and get it over with."—Arizona Kitty-Kat.



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TUNING IN

American Public Health Association

Eleven sections will comprise the 57th annual convention of the American Public Health Association, which will be held jointly with the meetings of the American Child Health Association and the American Social Hygiene Association, October 15th to 19th, inclusive, at the Stevens Hotel. Sections will be divided into the following main groups: Epidemiology, Public Health Education, Cancer, Vital Statistics, Industrial Hygiene, Public Health Engineering, Child Hygiene, Laboratory, Health Officers, Food, Drugs and Nutrition, and Public Health Nursing.

The discussions in each section will be led by an authority in that field. Dr. Edward S. Godfrey, Jr., Director of the Bureau of Communicable Diseases of the state of New York, will direct the section on Epidemiology—one of the most important divisions of the meeting. Dr. Godfrey will be assisted by Dr. Alton Pope, of Chicago, who will present a paper on "Fatality in Meningitis."

Convention discussions will be followed by laboratory trips, or inspection tours. Eighteen scheduled trips have been planned, and sixty-three optional ones are on the program, so that these tours will offer a wide range of interest and be of value to workers in every phase of health.

Over three thousand delegates and visitors, including physicians from England, Germany, Sweden, Mexico, Canada and the Canal Zone will be in Chicago to attend the meeting, which will open Monday evening, October 15th, with a general session at which Dr. Herman N. Bundesen, president of the American Public Health Association, will deliver the opening address. A second general session will be held on Wednesday when Dr. Frank G. Boudreau will be present from the Health Section of the League of Nations at Geneva, Switzerland, to speak on "International Health."

Degree of "Master of Midwifery" for Physicians, Great Britain

Medical practitioners in Great Britain who have held for six months a resident appointment in a recognized obstetric hospital, have attended a recognized prenatal clinic and a recognized infant-welfare center for not less than three months each, and have passed examinations in obstetrics, infant welfare, and diseases of infancy are now offered a new diploma granting the degree of master of midwifery by the Society of Apothecaries of Great Britain.—Children's Bureau.

Typhoid Prevention

In view of the interest of the Red Cross in preventive medicine in its public health work, it is amazing to note the strides made in this branch of medical science in recent years. A layman, looking over a recent government publication on the work of the Army Medical Department in the World War, could scarcely realize how great a gain has been made since the war of 1898. In the short Spanish War of a few months it was typhoid and not bullets that laid the American army low. The small force of 148,000 men reported 20,926 hospital cases. In the World War the annual typhoid rate was about one man in 3,000. Perhaps because it had time to prepare, America was the only one of the big powers that actually made inoculation mandatory for men in the service. A certain minority of the public

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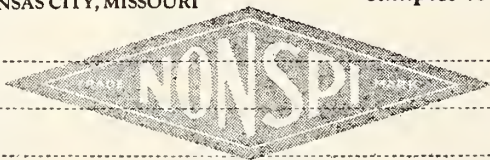
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raised a loud protest against inoculation, but nothing was heard from them after the marvelous results were announced.

At this season, the U. S. Public Health Service in its radio talks is warning the people against the danger of typhoid, calling attention particularly to the importance of pasteurizing or boiling milk. The department furthermore advises all campers to inoculate against typhoid. One of the health broadcasts, after contrasting the present annual death rate of 10,000 with the annual rate of 50,000 lives a few years ago, cautions the public against the false sense of security which preventive medicine has developed. Last year, an epidemic of typhoid broke out in the modernized city of Montreal, Canada, with a record of over 5,000 cases and 524 deaths. This tragic occurrence in a progressive city demonstrates that eternal vigilance is the price of sanitation.—Red Cross Courier.

Ages for Legal Marriage in the Philippines

Boys under 16 years of age and girls under 14 in the Philippines may not legally marry; before April 1, 1928, the legal ages were 14 for boys and 12 for girls. The written consent of parent or guardian is required for the marriage of a youth under 20 or a girl under 18. The publication of banns or the posting of notice of application for a license to marry for ten days before the ceremony is also required by the new marriage law.—U. S. Department of Labor.

New Health Text for High Schools

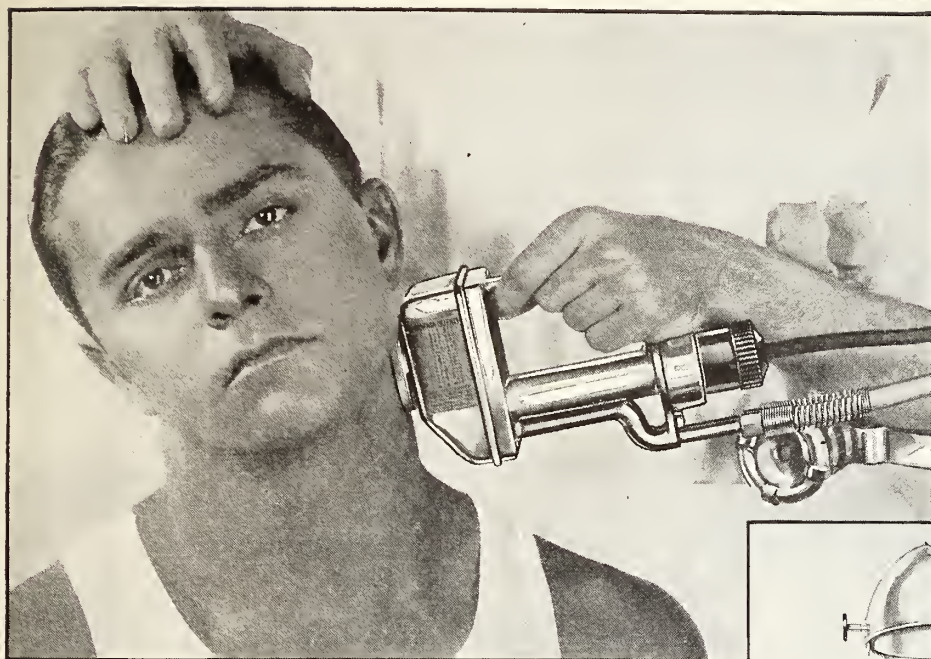
Health Essentials by Andress, Aldinger and Goldberger (Ginn & Co., Publishers) is an unusually successful accomplishment of the difficult undertaking of preparing a suitable health text for high school students. While the book is readable throughout and succeeds in presenting the reasons for healthful living in a way which should appeal to the natural interests of boys and girls of this age, it is remarkably free from the types of sugar-coated propaganda with which some hygiene texts insult the intelligence of high school students. The principal emphasis is on personal hygiene and a sufficient amount of physiological information is given to make clear the scientific foundations on which hygiene is based. The chapter on Play, Work and Rest is a particularly successful example of a combination of sound motivation as to what has been demonstrated by scientific experiment in industry and elsewhere so as to increase in production through rest periods and the physiological effects of fatigue. There are excellent chapters on The Conquest of Disease, The Prevention of Accidents, public health administration and the choice of a healthful occupation.—Bulletin National Tuberculosis Association.

Japaned English

In the twenty-fourth volume of Annual Statistics of the City of Tokyo one of the causes of death is listed as "Good natured tumours and other diseases of the female organs."—Health News.

Tea Importations Decline

Nearly six and one-half million pounds less tea was imported during the fiscal year ending June 30, 1928, than during the previous year, according to the report of the supervising tea examiner of the Food, Drug and Insecticide Administration, United States Department of Agriculture. Altogether 91,105,613 pounds of tea were examined at the various ports of entry during the year.—U. S. Department of Agriculture.



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Serum Reactions Not Due to Previous T-A

A number of practicing physicians have expressed a fear recently that immunization with toxin-antitoxin may lead to sensitizing the patients to subsequent serum injections. In the instances which have come to our attention and nearly all of those reported in the literature, the serum therapy has consisted in the use of scarlet fever antitoxin or tetanus antitoxin, and the reactions have consisted in attacks of serum sickness.

It is well known that injection of either scarlet fever antitoxin or tetanus antitoxin is very likely to produce serum sickness whether given to a person who has had previous injections of horse serum or not. Physicians should recognize the difference between anaphylaxis and ordinary serum sickness.

Dr. William H. Park of New York City who unquestionably has had the largest experience with toxin-antitoxin of any person in this country, states:

So far as I can judge in my own experience, the amount of serum in toxin-anti-toxin slightly sensitizes the skin for the course of a year or two. So far as sensitizing the patients to immediate reactions or to late severe reactions, I have not seen any evidence in several institutions in which all the children received serum and only part of the children had received toxin-antitoxin.

*Many of the cases reported are simply those of serum sickness and certainly had nothing to do with toxin-antitoxin.—Health News.

Dr. Eugene L. Opie Elected President of National Association

At the recent annual meeting of the National Tuberculosis Association held at Portland, Oregon, Dr. Eugene L. Opie of the Henry Phipps Institute, Philadelphia, was elected president of the association for the coming year. Dr. Ray W. Matson, Portland, Oregon, was elected vice president.

Columbia University to Give Course on Organization of Public Opinion

The Extension Department of Columbia University announces its first course on the organization of public opinion to be given in extension next fall by George A. Hastings, public relations counsel and social worker. The course will consist of lectures, readings and discussions.

The subject matter covers the presentation of organized social movements, the promotion of public understanding of social organization and aims, the technic of public addresses, the preparation of news and feature articles and material for editorial comment, methods of organizing special campaigns of public education, and the effect of organized publicity on public opinion.—Health News.

Increase in Divorce Since 1887

The U. S. Bureau of the Census reports that the divorce rate per 1,000 of the population in 1926 was three times as great as it was in 1887, the year when the census began to compile records on the subject. Minor children were reported in more than one-third of the 1926 divorce cases, the total number affected being 116,378. The increase in the number of divorces for every 100 marriages during the same period was from 5.5 in 1887 to 15 in 1926.—U. S. Department of Labor.

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In an endeavor to improve conditions that may be properly grouped under the above-mentioned terms, the first thought of the attending physician is an immediate gain in weight, and the second thought is to so arrange the diet that this initial gain will be sustained and progressive gain be established. Every few ounces gained means progress not only in the upward swing of the weight curve, but in digestive capacity in thus clearing the way for an increasing intake of food material. As a starting point to carry out this entirely rational idea, the following formula is suggested:

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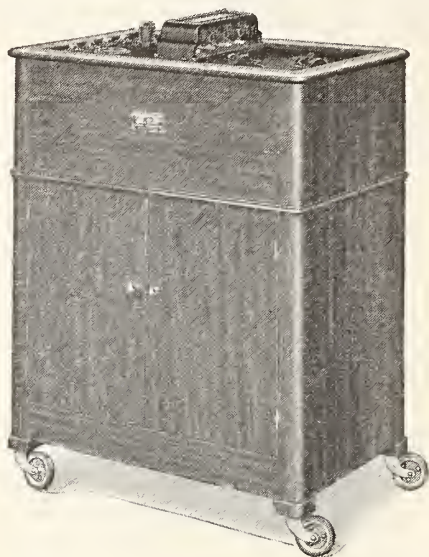
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Longevity of College Athletes

It is not easy to draw final conclusions from our investigation in spite of the fact that much time and work have gone into the preparation of the data we already have. Taken by and large, it would appear that the group of college athletes studied presented a favorable mortality picture. The experience has been much better among recent graduates than the earlier ones with the single exception of those who were on the crews. I must confess, however, that I expected a better showing than actually appeared in the record. These college men represented the cream of the cream of American manhood. It is my opinion, although I would not wish to push that too far, that athletic activities in the earlier periods of loose supervision did considerable damage. The high incidence of heart disease which we found at the older ages is a matter which should not be taken lightly. Conditions are very much better in more recent years of intensive selection and careful supervision of the athletes.

On the other hand, it may be that we have expected too much from our athletes. It is, after all, a good deal of an assumption that the athletic type of build and great longevity go hand in hand. There are facts pointing the other way which we in the insurance business are gradually making note of. Those who arrive at a ripe old age are often small and physically undeveloped people. Women live much longer than men. Men of large frame and especially those who are inclined to become seriously overweight give high mortality rates and insurance companies are very cautious in insuring them at standard rates. It is, therefore, possible that the type of man who is selected for athletic activity may, after all, not be cut for extremely favorable longevity. The problem will be solved only when we have side by side with our present figures, data for the classmates of these men who did not engage in athletic sports. We shall then be able to tell definitely what effects indulgence in the several athletic activities produce in terms of longer life.—Louis I Dublin, Ph.D., Harper's Monthly Magazine.

Rest in Tuberculosis

General systemic rest is the foundation of the treatment of tuberculosis. Tuberculous lungs, like other diseased organs, heal best when at rest. Bed rest not only conserves the energy supply of the entire body, but also lessens the activity of the lungs. Postural rest and the chest splint are valuable in that they reduce the work of the lung most affected. It has long been known that spontaneous pneumothorax often has a beneficent effect in tuberculosis, due to the enforced rest of the lung brought about by the pneumatic pressure. Pleural effusion, a common complication of pulmonary tuberculosis, also tends to compress or "splint" the lung, while pleural adhesions often serve to limit the motion of the diseased part. With these natural methods of inducing rest of the affected lung as a cue, surgical methods to secure partial or complete immobilization of the lung have been devised. Surgical procedures imitate the natural methods but are more precise and aim to avoid the disadvantages of spontaneous pneumothorax, pleuritic effusion and adhesions. Lung surgery and particularly artificial pneumothorax is proving its great value as an adjunct in the treatment of pulmonary tuberculosis.—Tuberculosis Abstract.

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EDITORIAL NOTES AND COMMENT

MEDICAL LIFE EXTENSION

In his inaugural address before the American College of Surgeons, Dr. Franklin H. Martin spoke on The Evolution of Clinical Medicine and Surgery in Relation to the Preservation of Health and Life. Some of the conclusions drawn from the facts adduced are as inspiring as they are startling. The following are given as examples:

- a. Extension of longevity from average of 58 years in 1920, to 65 years in 1930;
- b. Extension of middle life to a marked degree (conservatively estimated) to an average of 80 years by 1925;
- c. Extension of average old age upper limit, at present approximately 90 years, to an undetermined average, conservatively to 100 or 110 years by 1940 or 1950;
- d. The degenerative diseases, the principal causes of senility, begin at 45 years, the most useful period of life;
- e. Sudden deaths from diseases in middle life are due to neglected degenerative diseases;
- f. Yearly examinations by one's own scientific doctor will detect early beginnings of degenerative diseases of middle life, and appropriate treatment will prevent or postpone their development;
- g. Periodic health examinations, which guard against all preventive diseases, and many curable diseases, are urged upon old and young. An examination on the birthday is urged.
- h. Orgies, and over-indulgence in eating and drinking, rather than overwork, destroy health and shorten life.

- i. The campaign urging the public to seek yearly examinations has increased the number of examinations from 5,000,000 in 1920, to 20,500,000 in 1928.
- j. The 18th Amendment. More than two-thirds of our people morally and spiritually favor the 18th Amendment of the United States Constitution. In spite of the injudicious administration of this 18th Amendment, which has resulted in an orgy of law breaking, of self-indulgence, and ridicule on the part of the other one-third of our citizens, the foundation has been laid for a demonstration of race betterment and extension of life that will astonish the world.

DENVER'S HEALTH APPRAISAL

Extended comment upon the findings and preliminary recommendations of the Denver Health Appraisal must properly wait upon the appearance of the final report of this most valuable undertaking of the Denver Public Health Council. Attention is here directed to one or two features of this public spirited effort and to a few recommendations of major importance.

The idea of a thorough analysis of all health activities in the city and county from which would naturally follow economy through elimination of duplicated activities and greater efficiency through logical revisions of method and through better co-ordination between municipal official management and voluntary enterprise, first took shape in 1925 but was temporarily shelved until revival this year by the Health Com-

mittee of the Community Chest and finally carried out under the auspices of the Public Health Council.

Since early spring executives of the more active health organizations in cooperation with Dr. B. B. Jaffa of the Health Department and Dr. A. L. Beaghler of the Denver Public School Medical Department have been busy assembling the pertinent facts.

Dr. W. F. Walker, Field Director, and Dr. James Wallace, Associate Field Director of the American Public Health Association, have spent many days in Denver in conference with local officials. Final recommendations will have their approval and will bear the stamp of the authority of the American Public Health Association.

Among the more important recommendations of the preliminary report are:

1. Construction of a new contagious disease hospital.
2. Regulation relating to the sanitation of public eating and drinking establishments.
3. The establishment of a tuberculosis bureau or division in the Department of Health under which economical and efficient coordination of all tuberculosis control work in the city may be effected.
4. Provisions of more hospital beds for the tubercular especially for hospital cases and proper recommendations for tubercular children for whom no provision is made at the present time.

It is most interesting to note that of the 115 members of the fifteen committees of the Health Council engaged in the appraisal, seventy-four are dentists and two doctors on each committee or thirty in all were official representatives of the Medical Society of the City and County of Denver.

The combination of prominent members of the County Medical Society, officials of the City Health Department and earnest and experienced leaders of private organizations working in close and cordial relationship on a revision of public health methods ought to effect changes of far-reaching importance.

The mayor and city council may be relied upon to appreciate the importance of the ap-

praisal and to act upon its recommendation.
J. J. W.

THE PASSING OF PRIMARY ANEMIA

Anemia is gradually losing its place as a primary clinical entity and is assuming the role of a symptom only. For a long time the so-called secondary anemias have been viewed in this light. But in contrast to this, pernicious anemia has stood apart as a disease in itself without known cause or hope of recovery. But its qualities of primary blood destruction and pernicious course seem now to be more apparent than real. When clinicians began to demand characteristic gastric and nervous system changes as well as a characteristic blood picture the suspicion soon grew that this anemia is probably secondary. The pioneer work of Whipple followed by the brilliant adaptation of dietary treatment by Minot and Murphy has erased both of the descriptive adjectives, primary and pernicious. Such a patient is now quite normal save for the lack of something—vitamine or hormone—easily supplied in some of the cheapest products of an ordinary market. The excellent symposium presented before the Section on Pharmacology and Therapeutics of the American Medical Association in 1928 has recently been published. The cases reported cover enough time to convince the most skeptical. These reports are astounding in their confirmation of this recent advance in medical knowledge. Happily its application is within the reach of every practitioner.

Why We Lag in Crime Control

"Research of any practical kind demonstrates very quickly that a vast deal of crime and delinquency is due to our utter lack, here in America, of sensible organization for treatment of the offender. There is lack of coordination and cooperation. There is lack of the study of the outcome of what is prescribed under the law, lack of understanding of different types of individuals, lack of discrimination of different types of criminalistic motives and backgrounds, and above all, lack of understanding of the deeper mental factors in crime."—William Healy, "The Mental Factors in Crime," *Mental Hygiene*, October, 1928.

"In educational research formalism flourishes as a pseudo-scientific striving for precision in matters which can be precise only as they are denatured. 'Let us make education an exact science.'"—Chas. H. Cooley, *Life and the Student*.

STATUS OF THE CALMETTE (BCG) VACCINATION AGAINST TUBERCULOSIS*

MAURICE KATZMAN, M.D.,
DENVER

Historical

One of the most elaborate of human experiments has been carried out in the past few years for the prevention of infant tuberculosis. This is the anti-tuberculosis vaccination of Calmette begun at the Pasteur Institute in Paris in 1922. The organism with which eighty thousand children have been vaccinated up to May 2, 1928, is called BCG (*Bacillus bilie Calmette Guerin*). Originally beginning the attenuation of a virulent bovine tubercle bacillus in 1906, in 1921 after two hundred thirty successive cultures on an unfavorable bile medium, the organism had become stabilized and regularly non-pathogenic for any of the animal species. In May, 1924, Calmette and his co-workers reported an extensive experiment with cattle and shortly afterward on the vaccination of infants. From this time its use has been increasing by leaps and bounds until now the vaccine is being used in a great many countries.

Although many investigators have attempted vaccination against tuberculosis with dead bacilli, bacillary products, live attenuated, and even virulent organisms, it remained for Calmette to be able to offer an organism of such attenuation as to be increasingly acceptable to the medical profession.

Bacteriologic Description of BCG

The bacillus used is from a virulent bovine source, grown for the first time in 1906. Since then, it has been cultured every fifteen days on a special medium of 5 per cent glycerinated ox-bile potato, which has slowly changed its physico-chemical constitution, without injuring its vitality or diminishing its antigenic properties, but gradually lessening its power of producing tubercles.

After four years, BCG was no longer virulent for the ox or guinea-pig, but was still pathogenic for the horse and rabbit. After

two hundred thirty successive cultures on the same type media at 38 degrees centigrade taking thirteen years, the bacillus had lost all power to produce tubercles in all domestic animals (horse, cow, sheep, dog, rabbit, guinea-pig, mouse, and rat as well as the hen and pigeon), by intravenous, intraperitoneal, or by oral administration (1a). On glycerinated potato bile the culture has a mucoid appearance. After ten days it forms a glossy, creamy mass, greenish brown in color, which thickens around the borders on the twenty-fifth day and then ceases to grow. On ordinary glycerinated veal broth potato of pH 7.2, it regains the normal appearance of tubercle bacillus cultures, slightly moist, yellowish or greyish white, granular wrinkled masses. Each centigram of fresh culture is equivalent to 400,000,000 bacilli, and forms one of the three doses used to vaccinate infants.

The drained and weighed bacilli are placed in a sterile flask of thick green glass, containing a few drops of preserving fluid and sterile glass beads of five millimeter diameter and are mechanically agitated for ten to fifteen minutes to break up the clumps of bacteria. Sufficient preserving fluid (pure glycerine 40 gm. pure glucose 10 gm. and enough distilled water to make 1000 cc.) is added to make two cubic centimeters for each centigram of bacteria. This is stirred and the homogeneous emulsion is syphoned off into two cubic centimeter portions and sealed. Each portion contains one centigram of bacteria. The vaccine is preserved on ice at five degrees centigrade. Sauton's solution may also be used as a vehicle. The vaccine should be homogeneous and free from clumps and should not be used after ten days, as most of the organisms die quickly at room temperature.

After the two hundred thirty transplants on the highly alkaline bile medium, the culture has been preserved on potato and ordinary glycerinated broth or on Sauton's me-

*Delivered before the fifty-eighth annual meeting of the Colorado State Medical Society, Colorado Springs, September 11, 1928.

dium, transplanting twice consecutively on bile potato after each ten transfers on ordinary glycerinated broth potato or Sauton's medium.

On the synthetic medium of Sauton (used because of the ease of obtaining a pellicle) the appearance is a little more like the cultures of bovine bacilli on ordinary glycerinated broth, in its more rapid development and thicker growth. Cultures are transplanted every twenty days or at most every twenty-five days.

The prepared tubes are placed at an angle of ten to fifteen degrees in such a manner that the lowest part of the potato alone rests in contact with the broth. The cultures are incubated at 38 degrees centigrade.

For the preparation of the potato it is recommended that the pieces (cut by a punch) be immersed for some hours in water containing ten grams of sodium carbonate per liter. The pieces are drained in a cloth, placed in narrow Roux tubes, and filled to the constriction with 5 per cent glycerinated broth adjusted to pH 7.2. The tubes are sterilized for thirty minutes at 120 degrees centigrade and are kept stoppered for three days in the incubator to assure absence of contamination.

Bile potato is prepared as follows: The fresh contents of several gall bladders are mixed in a flask. This is sterilized for thirty minutes at 120 degrees centigrade and rests at room temperature for about three weeks. There is an abundant brick red deposit of pigments which is removed by filtering through paper when using. The pieces of potato cut out by the punch are immersed in this bile to which is added 5 per cent glycerine. This is heated in a double boiler at 75 degrees centigrade for three hours. The juices are then drained from the potato and the pieces are placed in Roux tubes which have been filled to the constriction with fresh 5 per cent glycerinated bile, sterilized thirty minutes at 120 degrees centigrade and then adjusted to pH 8.7.

Sauton's synthetic medium is ideal for growing BCG in preparation for the vaccine. It has the following composition:

Asparagin	4
Pure glycerine	60

Citric acid	2
Bipotassium phosphate	0.5
Magnesium sulphate	0.5
Citrate of iron (ammoniated).....	0.05
Water	940

After the complete solution of the asparagin and the salts, the liquid is adjusted with pure ammonia to pH 7.2. One hundred fifty cubic centimeter portions are placed in 250 cc. flasks and sterilized in the autoclave.

The growth, which attains the weight of five grams at the end of four weeks, is removed from Sauton's medium, gathered and weighed on sterile Berzelius paper, and transferred with a spatula in a small sterilized and covered platinum capsule or one of pure nickel or quartz. Each centigram of fresh drained culture so prepared is equivalent to 400,000,000 bacilli (lb.).

Chemical tests of BCG and ordinary tubercle bacilli show no quantitative differences in fat, wax, or phosphorus bearing lipoids. There are qualitative differences that can be demonstrated with the spectroscope. There are also differences in surface tension between BCG and ordinary tubercle bacilli.²

For transporting the prepared vaccine C. Guerin³ has recently recommended the following procedure: after preparation and ampoules of BCG vaccine are placed in one liter wide-mouthed thermos bottles containing 15 per cent glycerine water. This is placed in a freezing apparatus at minus seven degrees centigrade. After a few hours the contents of the ampoules become chilled. In transporting on ships the thermos bottles are kept in the food refrigerator. After thawing the vaccine is usable for ten days.

Immunologic Considerations

When a large dose of BCG is injected subcutaneously in animals (calves, etc.); it gives rise to a local reaction which appears in twenty-four hours and consists of a soft edematous mass, the size of a nut or an egg, later becoming dense, hard, and mobile. There is no tendency to suppuration (1c). In one animal which died of complications, this mass was found to resemble old tuberculous lymph node lesions. Within a resistant capsule was a nucleus containing poorly staining bacillary bodies. The vaccinal lesion slowly subsides, disappearing about the tenth to the eighteenth month. It

is always painless. General reactions were noted in only 25 per cent of the animals, consisting of a sharp febrile attack about the fifteenth to eighteenth day, with depression and anorexia. The fever disappears after five or six days and the general condition remains excellent. This late reaction must be due to a bacillary septicemia as a greater or lesser number of bacillary bodies reach the circulation.

Tzekhnovitzer⁴ describes the local lesion as being in the form of encysted abscesses containing acid resisting bacilli and having the structure of tuberculous granulomas. The contents of these granulomas injected into guinea-pigs under the skin or intraperitoneally did not give rise to tuberculous lesions. Calmette does not consider this picture as tuberculous, but rather a form of symbiosis of the BCG "with certain fixed cells of mesodermic origin. From this symbiotic life results a complex, to a degree autonomic, the bacillized cell, comparable to lichen which is the product of the symbiosis of an algae and a mushroom, a giant cell; which does not necessarily give birth to a tuberculous lesion". This interpretation of the appearance of tissue seen at autopsy, which is contrary to what most of us have been taught, undoubtedly accounts for some of the discrepancies in the various reports.

A giant cell containing acid fast organisms would, to most of us, be conclusive evidence of a tuberculous process. However the preponderance of evidence is that these lesions are not progressive⁶ and that they tend to retrogress and disappear, in which case this could not be considered as a true progressive tuberculous process with which we have previously associated such a histologic picture. Calmette and his associates in stating that BCG is non-tuberculogenic base their conclusions on the foregoing ideas.

When 100 mg. is injected intravenously into calves it gives them a typhoid state from which they recover spontaneously in two or three weeks without producing follicular lesions⁷. Injected into the heart of guinea-pigs in doses of 100 mg. BCG provokes only the formation of epithelioid cells in the liver, lungs, spleen, and lymph glands⁴.

When vaccinated animals are tested by intravenous inoculation of virulent bovine bacilli which kills control calves in 30 to 45 days with generalized granulating lesions, the calves respond at the end of a few hours by a violent temperature ($40\frac{1}{2}^{\circ}\text{C}$) which disappears in one to two days, when normal conditions are restored and the animals remain in excellent health. Autopsy from two to twelve months after the test shows all the protected animals free from tuberculous lesions⁸. In other words, when injected into animals BCG makes them hypersensitive to subsequent inoculation with virulent tubercle bacilli, acting in the manner of unattenuated organisms to produce Koch's phenomenon²¹. The immunity is extinguished by the destruction of the complex cells by macrophagous processes⁹ or by the natural emictory means³.

In excessively large doses BCG may be shown to be toxic¹⁰ but Silberschmidt¹¹ contends that this toxicity is not virulence but is similar in nature to the toxicity of many saprophytes which are poisonous when introduced in large quantities. This does not prove that they are virulent. He contends that only those organisms may be called virulent which, following their introduction into the body, multiply and then work injuriously.

BCG produces tuberculin although it appeared to have lost this property in the presence of bile.

The tuberculin reaction seems to be extremely variable in its appearance and duration after oral administration—the French workers advise ignoring it entirely. Nelis¹² found it positive in one to two months after oral administration and to last six to ten months, while according to Remlinger and Bailly¹³ it was still negative after seventy-four days.

The tuberculin reaction is more constant after subcutaneous inoculation than by any other method. The rapidity with which animals vaccinated intravenously cease to react to tuberculin is striking. At the same time they become quite tolerant to virulent bacilli. If such tolerance is due to the presence of living bacilli, it should cease with their

elimination, and the duration of tolerance should be prolonged by a method of administration which will delay such elimination. Experiments showed that animals inoculated subcutaneously preserved their power for reacting to tuberculin longer than those inoculated intravenously. Assuming that tuberculin hypersensitiveness is a measure of tuberculosis immunity Heimbeck¹⁴ and others¹⁵ have used the intra and subcutaneous methods of vaccinating tuberculin negative children and adults.

BCG produces specific antibodies identified by the Bordet-Gengou complement fixation reaction (Id, 5).

Protective vaccination requires a certain time to produce its effect and does not confer an immediate immunity. Experiments on animals show that immunity is obtained only after several weeks. Hence when the infant has to live in an infected environment every hygienic care must be exercised to reduce the possibility of a massive infection.

In re-vaccination the tuberculin reaction should be negative at least a month before again vaccinating as it will otherwise not take¹⁶.

Experimental Data

From the accompanying tabulated review which is not complete but is representative of the opinion of research men, we find that although Nobel and Sole¹⁷, Chiari, Nobel and Sole¹⁰, Lignieres¹⁸⁻¹⁹, and Bocchini²⁰ have produced tuberculosis in guinea pigs with BCG; Calmette, Guerin, Negre and Boquet²¹⁻²²⁻²³, Wilbert²⁴, Remlinger and Bailly¹³, Tzekhnovitzer⁴⁻⁶, Heymans²⁵, Pepeu²⁷, Selter and Blumberg²⁸, Saye, Domingo, and Miralbell²⁹, Okell and Parish³⁰, Lange and Lydtin³¹, Dwijkoff and Masourowski³², and Silberschmidt¹¹ have found that BCG does not produce a progressive tuberculosis in susceptible animals. The conclusion is forced on one that BCG is innocuous in normal dosage.

Chiari, Nobel and Sole¹⁰ claim that animal passage enhances virulence of BCG and Lignieres¹⁸⁻¹⁹ fears it may do so, but the Calmette group of investigators, Lange and Lydtin³¹ and Tzekhnovitzer have found that BCG does not become more virulent on animal passage. Calmette himself (Id) states

that if it is at all possible to restore virulence to BCG, it will be a long and difficult task.

The immunizing power of BCG is still more open to question. Calmette and Guerin²¹, Wilbert²⁴, Tzekhnovitzer⁴⁻⁶, Calmette, Guerin, Negre and Boquet²², Guerin et al²³, and Pepeu²⁷ are all inclined to believe that BCG gives adequate T. B. immunity. Heymans²⁵, Selter and Blumberg²⁸, Okell and Parish³⁰, Lange and Lydtin, and Dwijkoff and Masourowski³² claim that the engendered immunity is only partial, while Lignieres¹⁸, Nobel and Sole¹⁷, Chiari, Nobel and Sole¹⁰, and Bocchini state that it gives little or no immunity.

There are so few autopsies on vaccinated children reported that no important deductions can be drawn from them. Among the lesions found are tracho-bronchial tuberculosis, tuberculous meningitis, and pulmonary tuberculosis³⁷. J. Taillens⁶⁷ reports on a death from tuberculous meningitis and states that either the vaccine did not protect the infant or had infected it, while Girod and Debarge in the same journal report an autopsy on a child dying of gastro-enteritis twenty-five days after having received BCG. They found no tuberculous lesions although acid fast bacteria were found in the marrow of vertebrae. This means that BCG had to travel through the blood stream to get to the vertebrae and shows that BCG does not provoke tuberculous lesions even in delicate infants²⁶.

Most encouraging is the change in A. Wallgren who at first questioned the efficacy of BCG³⁶ and later reported on the intracutaneous vaccination of infants¹⁵, and the fact that Kraus has, after careful consideration, come to the conclusion and published his opinion that BCG is a true vaccine in Pasteur's acceptance of the term³⁵, when he had previously feared bad results and urged caution³²⁻³⁴.

Method of Administration

New born infants are given three does of BCG vaccine by mouth. Each dose is administered by pouring the contents of one of the vials (of .1 gram or 400,000,000 bacteria) into a small spoon containing a little milk at body temperature. It is fed to the infant

half an hour before nursing. The vaccine is given as soon after birth as possible, for example, on the third, fifth, and seventh day, or fourth, sixth and eighth day³⁷.

The vaccine is perfectly tolerated by new born infants. No immediate temperature reaction is noted nor is there loss of weight³⁸, digestive disturbances, or malaise³⁷.

As found in animal experiments, a large portion of the ingested vaccine is eliminated in the stools¹³, some of it however goes through the permeable infant intestine and sets up the characteristic train of events leading to the giant-cell formation and its final removal from the system after a prolonged period by the natural emictory means. There are no early complications or sequelae.

The tuberculin reaction is variable in appearance after vaccination by the oral method and is inconstant. Many children who are vaccinated do not give the reaction, but still have acquired a tolerance as pointed out by Calmette.

It is claimed that BCG gives immunity of four years duration³⁹. There is a definite decrease in mortality from all diseases in the vaccinated children setting them aside as a group⁴⁰ that is preferred or specially guarded.

Vaccination by the intracutaneous and subcutaneous method has been carried out in infants and adults with similarly good results. Weill-Halle and Turpin⁴¹ have vaccinated older children by hypodermic method giving 0.00025 gm. after a four weeks' observation with tuberculin tests proved them tuberculin negative. There was no change in the weight curve and but a slight local reaction in the form of a subcutaneous nodule coming on after three weeks with an occasional swelling of the accompanying lymph glands. After 35 or 40 days the nodule may develop into a small cold abscess which opens spontaneously about the eighth week and is succeeded by a serous discharge persisting two to three months. Care should be exercised to prevent secondary infection. There remains only a punctiform and adherent deep scar. These children show a positive tuberculin reaction after two to three months.

Calmette³⁷ previously stated that **in adults or adolescents two negative tuberculin reactions eight days apart should be obtained before giving subcutaneous doses of BCG.**

Buschmann⁴² had inoculated 89 new born infants with BCG by July, 1927, without any deaths or other untoward effects. In only a small percentage of cases was the tuberculin reaction positive.

Heimbeck¹⁴⁻¹⁸ used .03 mg. followed by .05 mg. one week later. Positive tuberculin reactions were obtained after six weeks and were still positive after nine months.

In children older than two weeks Calmette⁴ recommends .01 to .05 mg. in one dose subcutaneously after two negative tuberculin skin reactions eight days apart. He recommends the same small dose for adults.

In Cochin China Rousseau⁴⁵ began the subcutaneous vaccination on tuberculin negative children of various ages. Grosfillez reports that 250 recruits were vaccinated subcutaneously in the French Colonial troupes⁴⁶.

Wallgren¹⁵ reports on the progress of intracutaneous vaccination of sucklings with .1 to 0.5 mg. injected once into upper part of thigh. After a few weeks an infiltration occurs at the site of injection with softening and spontaneous perforation of the cold abscess and discharge of BCG containing pus. After two or three months the wound heals spontaneously. In some cases the regional lymph glands enlarge and become purulent. The glands also heal spontaneously after some months. The tuberculin reaction becomes positive in three to six weeks. Exposed children are quarantined seven to eight weeks. If they do not react at the end of this time to large doses of tuberculin (up to 3 mg.) they are considered tuberculosis free and then vaccinated.

The vaccinated children should be isolated from all contact with the tuberculous. If this is impossible, massive contagion must be avoided by means of cleanliness⁴⁷.

Objections

It can be seen from the statistics given that BCG is not an unmixed blessing. A definite percentage of those vaccinated die of tuberculosis. In private practice such a death would reflect on the practitioner while

VACCINATION STATISTICS AS REPORTED BY CALMETTE AND CO-WORKERS						
DATE	Ref. No.	Total No. Vaccinated	Number of T. B. Contacts	No. Kept Under Observation	T.B. Deaths	Total Deaths
June, 1924.....	8, 37, 48, 49, 50, 51.	217	17	178	0	15-8.4%
June 20, 1925.....	49, 52, 53.	2,070	223	423	2-5%	32-7.5%
Jan. 1, 1926.....	37, 54.	5,183	1/2 to 1 yr.....365 1 to 1 1/2 yrs. 231	753 564	9 2	62 45
			596	1317	11-7%	107-7.9%
June 30, 1926.....	55.	11,208	T. B. Mothers 1/2 to 1 yr.....106 1 to 2 yrs.....291	Unspecified 107 568 1210	2-3% 11-9%	not stated
			1 to 2 yrs.....882 Over 2 yrs..... 87	1885	7-8%	79-8.9%
Feb. 1, 1927.....	le	21,000	969	982		
Dec. 1, 1927.....	56, 57.	52,772	0 to 1 yr.....3808 1 to 3 1/2 yrs.1941		34-3.1% 4-2%	118-3.1% 21-1.2%
May 2, 1928.....	19.	80,000	5749	5749		

General mortality rate for similar age group approximately 25 per cent.

it would scarcely be noticed in group vaccination.

Calmette claims BCG is avirulent and non-tuberculogenic. Selter and Blumberg²⁸, Kraus³³⁻³⁴⁻³⁵, and Schroetter⁵⁸, on the other hand, have found it capable of producing tubercles, non-nosogenic to be sure, and claim that its immunizing power depends on this property.

Calmette's method has been attacked from various sources and on conflicting grounds, some ascribing too much virulence (Chiari, Nobel, and Sole¹⁰, Lignieres¹⁸⁻¹⁹, Bocchini²⁰, Petroff⁶¹, Wieland⁶²), some too little virulence (Selter⁶³⁻⁶⁴), and some attacking his statistics as inaccurate (Greenwood³⁹, Fernandez⁶⁶, Medin⁶⁵), but the procedure is being employed more and more extensively until now it has spread to parts remote from its place of origin.

Taking these conflicting objections into consideration, BCG can still be viewed as an extremely attenuated form of bovine tubercle bacillus which may be used with reasonable safety and with the knowledge that a mild retrogressive infection is being substituted for an almost surely fatal infant tuberculosis, and that this mild infection is capable of warding off moderate numbers of highly virulent organisms.

The depression in general mortality rates can mean one of two things; first, that the

care and education concomitant with BCG vaccination is the saving factor⁶⁶, or secondly, that this lessened general mortality is directly due to the vaccination. In either case the fact remains that there is a lessened mortality from all diseases, and this in itself speaks favorably for the procedure.

Indications and Contra-Indications

The indications for the use of BCG can be summed up to be the danger of exposure of infants by direct intimate contact with sputum-positive or open cases of tuberculosis, an unfavorable environment, or an infant of an especially susceptible family or race. Until certain research men (Petroff, etc.), following the example of Kraus and Wallgren, find that BCG is avirulent, it is wise in America to limit its use to those infants who would surely acquire a virulent human type tuberculosis by direct intimate contact with open cases; the vaccination here being the lesser danger.

The main contra-indication given by Calmette is a previous infection with tuberculosis, or a suspected previous infection, as in this case a dose of BCG might act similarly to an excessive dose of tuberculin and tend to light up the existing infection. All children over ten days old must be suspected of being tuberculous and should have repeated tuberculin tests before vaccination.

BCG ought not be given without the

parents' consent³⁸ and after administration the children must be guarded for some time from direct contact with positive sputum.

Comments

Of all the methods using killed organisms and their products, not one has stood the test of time or the test of numbers. Most modern authorities are agreed on the necessity for a tuberculous infection with **living organisms** to insure any certain degree of protection. BCG meets the requirement for a mild, living tuberculosis infection as a means of warding off bacteria of great virulence.

There is a normal species immunity in rabbits for the human tubercle bacillus, a large dose of the human type organism producing merely a circumscribed cold abscess while the same animal will quickly die of a generalized tuberculosis if a much smaller dose of the bovine bacillus is used. The human being is similarly, but to a lesser degree, immune to the bovine bacillus through the natural species immunity. Added to this partial natural immunity is the strong attenuation to which BCG has been subjected; so that even in susceptible animals it forms no more than the previously described cold abscess.

It can readily be seen that all the factors favorable for a complete avirulence have been employed in BCG. The attenuation has taken between fifteen and twenty years of purposeful effort, and to help guard against any interchange of cultures or tendency toward returning virulence, I recommend that only those strains of BCG be used in infant vaccination that have been cultivated exactly as advised by Prof. A. Calmette, and that representatives of the Pasteur Institute continue to test the many subcultures of the organism at regular intervals and to supply new cultures from time to time.

Summary

In this article is described Calmette's procedure for vaccinating infants against tuberculosis by means of his especially attenuated bovine tubercle bacillus which he has named BCG. Eighty thousand children have already been vaccinated with apparently good results. A review of the available literature shows the increasing tendency on the part

of many investigators who originally feared latent virulence in the organism to admit its harmlessness as well as its efficacy. It is the best method yet devised for producing an immunity against tuberculosis and as such has a definite place in modern medicine.

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AUTHOR	REF. NO. OF ANIMALS	NO. OF CONTROLS	METHOD OF USING BCG	WHEN TESTED	HOW TESTED	RESULTS	REMARKS	INTERSECTION
Calmette, A. Guérin, C.	21	12 Calves	Subq.	1-3-6-12-18 months	3 mg. virulent T.B. intrav. contact	All controls died. Two vaccinated died but not of T.B. (1) 50 to 100 mg. BCG protects against virulent T.B. for 12 months. (2) BCG is innocuous for calves and cows free from T.B. (3) By Feb. 1924, 142 calves vaccinated without harm.		Favorable
Albert, J.	24	19 Pithécus monstres	Subq. & oral	6 months	Contact with 20 infected	The 3 vaccinated remained alive. All infected and control animals died.		Favorable
Teebnowitzer, M.	4	224 C-pls	Subq.	1 year	Autopsy	Six of vaccinated alive, 13 died of intercurrent non-T.B. diseases. All controls died.		Favorable
Teebnowitzer, M.	4	112 Rabbits	Subq.	1 year	Autopsy	No macroscopic T.B. after 100 to 200 mg. BCG intra-cardially formed epithelioid cells.		Favorable
Heymans, J. P.	4	13 Calves	Subq.	6 mo.-6 mo.	Autopsy	Gave Giant cells and tubercles which were retrogressive.		Favorable
Calmette, Guérin, Mesere & Boquet	22	Rabbits and C-pls	Subq. intrav. intracardial pulmonary	10 days to 6 months	2 by autopsy 1 by necropsy 1 by histology 1 by bacteriology	All 13 survived. Four controls died of milky T.B.		Favorable
Guérin, C. et al.	23	88 Calves	Subq.	20 T.B. contact	Autopsy	Vaccinated alone showed no T.B. Vaccinated plus virulent T.B. survived twice as long as controls. Vaccinated in contact with open T.B. developed T.B.		Favorable
Remlinger & Bailey	13	20 C-pls	Oral	74 days	Tuberculin	Negative. None developed T.B. lesions. Favorable to investigators (cf. 10 below).		Favorable
Pepin, P.	27	Rabbits and C-pls	Intrav. intrap. subq. & oral	2 months	Autopsy	Five nodules discovered in those killed. Many still living. Vaccine is free from danger.		Favorable
Selter & Dumberg	26	17 C-pls	Subq.	24 days	Isolation & autopsy	BCG gives slight T.B. infection which recedes in 150 days. Gives active but not absolute immunity.		Favorable
Laugier, J.	18	C-pls and cattle	Subq. in ear			Claime BCG really attenuated, but questions its fixed attenuation.		Doubtful
Sayer, L. Domingo, P. Altabell, M.	29	Rabbits	Subq.			Seropurulent nodules appear which last several months.		Favorable
Silberstein, W.	11	Rabbits and C-pls	Intrav. intrap. subq. & oral		Autopsy	Proves BCG not virulent.		Favorable
Nobel, E. & Sate, A.	17	24 C-pls	Intrap.		Cultures	BCG is virulent with 10 mg. doses.		Unfavorable
Oxell, C. C. Parson, H. J.	30	C-pls	Subq.			BCG does not cause T.B. even after 2 doses of 20 mg. each. BCG vaccinated 6-pls live longer than controls. Uncertain whether BCG is better than dead bacilli or other living attenuated T.B. for vaccination.		Doubtful
Chant, H. Nobel, E. Sole A.	10	C-pls				(1) BCG capable of producing T.B. changes and even death. (2) Resistance of 6-pls to T.B. varies considerably. (3) BCG by mouth produces no change because it is eliminated without infecting the carrier. (4) BCG produces immunity in mice. (5) BCG can be made more virulent by animal passage. (6) BCG can be made more virulent by animal passage.		Unfavorable
Langre, B. Lyell, K.	31	C-pls and Rabbits	Inoculation			BCG produces T.B. infection which is always harmless and soon disappears. Animal passage does not increase virulence. Resistance to virulent T.B. is raised but only to a limited extent and is transient. BCG is harmless. Question its efficacy.		Doubtful
Beechini, A.	20	Series of Rabbits	Intrap. 30 mg.			All died of T.B. Advocates Martin's method.		Unfavorable
Teebnowitzer, M.	6	C-pls				(1) BCG produces only localized lesions with retrogressive tendencies. (2) Virulence of BCG not increased by repeated tuberculin injections. (3) BCG produces immunity in mice. (4) BCG culture proves non-virulence. (5) Vaccination of laboratory rodents gives relatively good results. (6) Vaccination of cattle confers definite resistance. (7) BCG eliminated in milk of cow is completely virulent.		Favorable
Wells, P.	12	4 C-pls	Oral			Tuberculin reaction positive after 1 or 2 months. Remains positive 6 to 10 months.		Favorable
Darlow, P. P. Linsore, L. P.	32	C-pls				BCG vaccinated 3-pls which were later inoculated with virulent T.B. showed fibrous processes which retrogressed and finally disappeared. Two successive virulent infections caused T.B. to set in.		Unfavorable

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DISCUSSION

E. Friedman, Denver: Dr. Katzman has rendered a distinct service in directing the attention of this Society to a subject about which most of us know nothing. It is difficult to read the literature on this subject—and incidentally, nearly everything that has been written has appeared in the foreign literature and very little in our own, without becoming quite enthusiastic about BCG. Almost everywhere where it has been used the mortality from tuberculosis in the first year of life has been reduced from 25 per cent to as low as 1 per cent in many cases. That appears to justify the hope that some day through this

means we may be able to reduce the still too high mortality from tuberculosis in childhood.

However, a critical study of the subject reveals certain difficulties. I will cite a few of these. The emulsion is given orally. Calmette very emphatically protests against any other route of administration. It is to be given in the first days of life, before an opportunity for infection can have taken place. If vomiting ensues shortly after administration, do we know how much had been vomited and how much retained? Are we sure that enough has been retained to do any good? Suppose there is hyperistalsis present? Here again we are at a loss to know how much had been passed through the bowel and how much had been absorbed.

After the emulsion had been given, several weeks must elapse before immunity can take place; in certain cases, as many as three or four months. During this interval the child is still susceptible to tuberculosis and must therefore be carefully segregated from its tuberculous parents. This constitutes a real drawback. And then, if immunity is established, it lasts usually only about a year, at most two years. At the expiration of this period the child is again susceptible and precautions must again be taken until a second inoculation will have conferred immunity. At best, whatever immunity is established is only relative; it is never absolute, and the inoculation may give rise to a false sense of security. The parents may feel that the ordinary precautions that we practice today are superfluous; and they become careless. A massive dose of living tubercle bacilli may prove fatal to a child, despite the vaccine that may have been given.

The contention of Calmette, as has been pointed out by Dr. Katzman, that the emulsion is not capable of causing generalized tuberculosis, is not universally accepted. Very recently in Chicago a committee consisting of scientists advised against the general use of BCG. In isolated cases perhaps we may use it, but it would be premature and ill-advised to advocate its general adoption by the profession. Moreover, in America, because of superior economic conditions, the need of any such vaccine is not nearly as urgent as it appears to be in the European countries, notably in France.

C. H. Boissevain, Colorado Springs: I do not think I can add anything to what Dr. Webb has said. We do not believe that Calmette's bacillus is at all virulent by reason of Miss Thomas' experiments reported by Dr. Webb. I might add that we were able to recover the B. C. G. bacillus after passing it in series through the testicles of five guinea pigs. This culture has been used to infect a new series of guinea pigs and has not shown any increased virulence so far. We intend to keep these guinea pigs alive for several years, until they die their natural death, if they do not succumb to tuberculosis before that. Dr. Ryder has found that the Saranac R1 bacillus may cause general tuberculosis if the pigs are kept alive for one or two years after infection. Since a similar phenomenon might occur with the B. C. G. bacillus we want to reserve our final judgment about its virulence for a few more years.

H. Sewall, Denver: There is one precautionary measure which it seems to me I am in position to suggest that may be of use. Suppose after keeping the guinea pig for one or two years, that the guinea pig, under examination with the Calmette bacillus, should develop tuberculosis,

what would be concluded? What would you conclude? That the Calmette bacillus is virulent? You might be completely wrong. Now, it has been my misfortune to see a great deal of so-called spontaneous tuberculosis developed among guinea pigs. In fact, for several years I interested myself in experiments in bringing infected guinea pigs in contact with normal guinea pigs and testing the latter for tuberculosis. The evidence was that tuberculosis could be transmitted by contact. Recently I have been astounded with certain very simple errors in animal feeding going on right under my own nose, which I think have a particular significance. A part of our standard diet for guinea pigs is stale bread which is bought by the loaf. While inspecting the animals a short while ago I found that one of the cages contained no bread, so I went over to a bin where the bread was stored and I put my hand down in the semi-darkness and brought out a slice of bread. I thought that was funny, when the bread should have been all in loaf. Why was it a slice of bread? I went to give it to a guinea pig and I got my finger smeared with something. Why, it was butter! Where did it come from? While the little investigation that we started did not prove that those guinea pigs had been fed from the patients' table, there was a whole lot of suspicion that that was the case. Now, we are not the only ones who suffer in this way. In another tuberculosis hospital I bought a bunch of guinea pigs; they had been kept in the open air, apparently in perfectly healthy conditions, and I declare there must have been 20 per cent of those guinea pigs I found with tuberculosis. Then I go out to an enormous hospital where there are a thousand patients and a skilled pathologist. When I told him about these things, he said, "I had sixty guinea pigs and 100 per cent of them contracted tuberculosis spontaneously." Now, these are all tuberculosis establishments, and my conclusions are that when you have a so-called research laboratory connected in the remotest way with a tuberculosis establishment, the chances are great that infected food will find its way from the plates of the patients to the cages of the pigs. I would also urge that when guinea pigs are handled by attendants or experimenters who have open tuberculosis the danger of contact infection is not to be disregarded; write children for pigs, and the caution is imperative. So I say that even if the animals reported by Dr. Webb and his associates had developed tuberculosis after administration of B. C. G., it would not necessarily prove the virulence of this organism.

F. P. Gengenbach, Denver: As far as I know, there are only two places in this country where there has been any extensive work tried out as to the results with B. C. G. vaccine; one is New York City, and the other Montreal. This last June I had the pleasure of listening in Bellevue Hospital to a presentation by Dr. William Park, with his co-worker, Dr. Camille Kereszturi. They have reported on 100 vaccinated infants, infants of tuberculosis families, the mother or some other member of the family with which the baby might come in rather close personal contact.

These 100 babies were vaccinated with the usual doses on the third, fifth and seventh days of life. I might say this is done for the reason, that in the early days of life the epithelial lining of the intestinal canal is not completely developed, many cells being of the protoplasmic type, and Calmette's theory was that these cells would absorb the attenuated bacilli more readily

than they would later in the infant's life. Of the 100 babies born of tuberculous families, five died, not of tuberculosis, one died of tuberculosis. From the ninety-four living babies there were twelve that were exposed to a TB member with positive sputum, thirty-four exposed to a TB member of the family with negative sputum, two to a TB member with positive sputum but still in the hospital, eight to a TB member with negative sputum and still in the hospital, and thirty-eight the TB member died without seeing the vaccinated baby.

Dr. Park believes that Calmette's methods should be carried out in detail. He commented upon the fact that some of the workers with B. C. G. who seemed to cast doubt as to the value of it, modified Calmette's method, and he touched upon the results of the work of Dr. Petroff and his associates, which are somewhat similar to those already reported by Dr. Webb this morning. Under certain conditions there are two strains developed, the smooth type, which in large enough doses will provoke a generalized tuberculosis, and the rough type, which apparently is quite harmless, so Dr. Park warns against changing Calmette's method until some good reason appears.

I might say at this time the results in Montreal have been very striking. In the 400 tuberculous families where the new-born infants had been vaccinated by the Calmette method, so far no cases of death from tuberculosis in those infants have been reported. It will perhaps be interesting to you for me to read the report on the child that died of tuberculosis. The history very briefly shows that at birth it weighed $5\frac{1}{2}$ pounds. He was separated immediately after birth from the mother, who was dying of tuberculosis, following the method recommended by Dr. Calmette of separating the baby for a month if the mother is tuberculous, believing that in that time it will gain enough immunity through vaccination to protect it. The infant did not gain in weight and was transferred to another hospital to obtain the services of a wet nurse. At $3\frac{1}{2}$ months of age it weighed only $6\frac{1}{2}$ pounds. The tuberculin test was repeatedly negative, the child had no fever, and X-ray pictures of the chest were always negative. After $3\frac{1}{2}$ months the child became acutely sick with whooping cough. Following this he developed meningeal symptoms with high fever, the intradermal tuberculin test was still negative, and a few days later an X-ray of the lungs showed that diffuse military foci had developed throughout both lungs and a large area of consolidation at the base of one lung, and later at four months of age the baby died at Bellevue. No autopsy was performed. The clinical diagnosis was military tuberculosis, but Dr. Park says he does not believe this death should be attributed to vaccination, since the mother died of military tuberculosis shortly after the birth of the child, and the inference is that the child died as the result of a congenital infection.

W. N. Beggs, Denver: I am very much interested in this paper, as it presents a very important subject for all of us who are interested in the subject of tuberculosis.

In the first place, the essential foundation of all our modern immunology is statistical. We should have more clinical statistics or experimental statistics, and a very essential factor is that the statistics shall be sufficient in number. That does not mean a few, it means a very, very

many, and they must be sufficiently carefully evaluated.

Now, regardless of the uncertainty which creeps into the mind as to the effect of the Calmette method, whether the administration by the mouth is going to be effective or not, from a theoretical point of view, we must consider the statistics which have been offered. Those which have been offered to the present date cover, as was shown by the essayist, 80,000 children. The reduction of mortality in the different localities in which these 80,000 children have been vaccinated and kept under observation for varying periods has been from about 25 per cent, the average rate, to from 8 per cent to 3 per cent, and, as one of the discussers stated, perhaps as low as 1 per cent. These statistics are sufficient to give us at any rate reasonable ground for a faith in the probable value of the Calmette method, and certainly a reasonable ground for the employment of the Calmette method as a probable measure of protection for children at least.

Now, an objection has been raised as to the probable duration of the immunity. That strikes me as not an essential objection. We recognize the fact that certain diseases do not confer permanent immunity, certain conditions calling for a watching out from time to time to prevent recurrence. Now, if it can be established that the duration of immunity, taken at the lower figure—one year—I believe the period contended for is about two, but suppose we take the lower figure as one year, and that the immunity covers the first year of the infant's life, that is sufficient justification, it seems to me, especially when we couple it with the lowering of mortality. This lowered mortality is not only in tuberculosis in children, but also from other diseases.

Further, the slowness of development or the possibility of an over-infection from an overwhelming dose of the human organism is, to my way of thinking, not a valid objection to the reasonableness of the application of the method as a general method for the protection of children. In tuberculosis we meet with that continuously under any course of procedure. When a person has obtained his primary infection of tuberculosis—and all people are susceptible to that, and practically all people become primarily infected, in their youth at least, or in their childhood or youth—it conveys a certain degree of immunity, but it is not a degree of immunity that cannot be overcome by overwhelming doses. It strikes me that the fact that tuberculosis may be caused by overwhelming doses in those who have been immunized is not a satisfactory argument against the use of B.C.G.

Dr. Katzman, closing: Most of the objections raised have been answered. The question of the length of time the immunity lasts has been reported recently to be between four and five years. As far as false security is concerned, we find that there is a general lowering of the total mortality or general mortality rates of these children as against the average, and if false security would have any effect, it would tend the other way.

As far as giving the emulsion by mouth is concerned, three doses are given instead of one. If the child is indisposed at one time, it may still obtain enough out of one dose of 400,000,000 organisms to give some element of immunity. Of course, this cannot compare with the accuracy of dosage when administered subcutaneously, because subcutaneously the body would have to deal with the given dose.

OBSERVATIONS ON THE TREATMENT OF TABETIC NEUROSYPHILIS*

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The first quarter of the Twentieth Century witnessed much clearing of the mists surrounding the nature of parenchymatous neurosyphilitic disease. The acceptance of syphilis as a *sine qua non* in the causation of locomotor ataxia and general paralysis of the insane is now quite complete. The bacteriological, histological and therapeutic evidences have been so conclusive as to remove the last lingering contestant.

Some idea of the confusion which obtained in the minds of the foremost neurologists of the early eighties is exceedingly well shown in a discussion of the paper of Dr. G. M. Hammond, entitled "Can Locomotor Ataxia be Cured?" when Dr. Wm. A. Hammond cited a case "suffering with all the symptoms of locomotor ataxia. * * * The treatment did not affect him in the slightest beneficially, and at the end of two weeks he was in about the same condition as when I first saw him, although he was taking sixty grains of iodide of potassium three times a day with a thirtieth of a grain of bichloride of mercury. I then changed the treatment entirely, and administered codein to give him sleep * * * and I also added one-fourth of a grain of nitrate of silver three times a day, without any anticipation of special benefit following the use of the silver; but two weeks afterward, to my absolute surprise, all the pains had ceased, the patient could walk perfectly well, the tendon reflexes had returned and were almost exaggerated."

He could not account for the result, except that it was congestion and not a sclerosis of the posterior columns.

The retrospect of the treatment has been marked by variety as well as activity. The demonstration of the living organism in the tissues of the two diseases accentuated the impetus already started by the Schaudinn, Wassermann and Ehrlich revelations.

The variations in the technic for the ad-

ministration of arsenical compounds were numerous and changing after Ehrlich's first pronouncements, and all syphilitic diseases, especially in the nervous system, were attacked with new vigor stimulated by unprecedented optimistic enthusiasm. Silver was added to the arsenobenzol molecule, and even resort made to bismuth, notwithstanding the negative experiences in all but acute manifestations after extensive research into the therapeutic value in all forms of syphilitic infection as reported in the Archives of the Pasteur Institute.

Another period of activity followed the announcement of the observations of Swift and Ellis. The interest and promise stimulated by the theory and results of salvarsanized serum was somewhat diluted when Dercum announced comparable results with thorough spinal drainage carried out during arsenical administration.

During the period of arsenical activity and variation, mercury in substance and in combination was interspersed—chiefly subdermally or intramuscularly.

Clinical improvement as implied by functional restoration or occupation recapacitation became a more frequent observation, and especially was this true and more enduring with tabes than has been the case in paresis.

The malarial hyperthermic treatment which has attracted so much attention in the treatment of paresis has also been applied to tabes, and recently the use of antichancroidal vaccine has been substituted for the malaria inoculations, especially in France. Rat bite fever and typhoid vaccine have been used for the purpose of inducing transitory febrile accessions.

Speculations as to the reason for the beneficial results are interesting and center chiefly around the lethal effects of hyperpyrexia upon the organism. That serological changes, especially the rendering negative of the Wassermann complement fixation, are the result of heat alone is doubtful.

*Delivered before the fifty-eighth annual meeting of the Colorado State Medical Society, Colorado Springs, September 11, 1928.

Anti-syphilitic medication has been invariably carried out at the same time and for varying periods following the pyrexial treatment.

In all parenchymatous neurosyphilis submitted to intensive treatment with sufficient persistence to overcome the activity of the disease it soon becomes evident that more or less destruction or permanent degeneration has obtained. Defects remaining and proceeding from such structural impairment constitute what may be termed residual symptoms.

It is obvious, therefore, that the permanent functional impairment will be in proportion to the activity of the disease and the length of time it has been operative before treatment was instituted.

Clinical improvement alone cannot be taken as an index to recovery without serological evidence. Stationary periods have long been recognized and tabetic individuals have been known to have remained without material progressive change for many years.

This rather desultory view of the retrospect will serve as a preface to the presentation of personal case records which have been chosen as exemplifying the results of various forms of treatment; the influence from the serological aspect; and as suggesting the possibility of degrees of virulence on the one hand and the hypersusceptibility of the individual—or more particularly the parenchyma of his nervous system—on the other.

Twelve cases of tabetic neurosyphilis have been selected from a rather large material as illustrating personal experiences extending over a considerable period of time.

In all cases selected it has been possible to correlate clinical and laboratorial data more accurately than is usually possible in extra-institutional studies.

The serological determinations were, for the most part, carried out by the late Dr. Ward Burdick, whose keen interest and accuracy has added much to the value of the records.

The technic has been modified and elaborated in accordance with that which appeared to be demanded in order to secure

dependable information through which the treatment intensified, altered or discontinued.

Routine examinations were conducted on serum and spinal fluid which included the following data:

Serum Wassermann with five antigens with elevated thermal (water bath) incubation; five with low thermal (refrigerator) incubation; Kolmer titration (0.03125 cc. to 0.5 cc.) Colloidal gold; cell content and globulin estimation.

The clinical case reports will be supplemented by a table in which the attempt has been made to present chronologically the observations in each case.

CASE REPORTS

Case I. J. C. Aged, 41. Lumber merchant. First observed August 12, 1912. Family history irrelevant. Previous history reveals only measles. No alcoholic excess. Gonorrheal infection admitted. Syphilitic infection denied. Two or three years before he first noticed inordinate fatigue with dull joint pains, later assuming lancinating character in spells. Dribbling of urine. Paresthesias in soles of feet. Girdle sense. Diplopia.

Examination revealed static incoordination. Knee jerks, R. markedly diminished; L. prompt. Tendo Achilles, absent bilaterally. Superficial reflexes present and normal with plantar flexion. No ocular imbalance. Pupils unequal; right responded sluggishly to light; L. no response. Response to convergence present. Optic fundi suggested muddy type of atrophy with slight diminution in capillary supply.

The diagnosis of tabes was not accepted and two years later he had become paraplegic with advanced ataxia and tremor but no wasting. Urinary dribbling constant. Marked hypotonus. All deep reflexes were abolished. Plantars flexor. No sensory loss except vibratory. Soles of feet hyperalgesic. Pupils unequal and irregular. Argyl-Robertson reaction. Fundi pale and slightly retracted.

Wassermann serum negative; spinal fluid positive; cells 24. Globulin, trace. Colloidal Gold, 1221000000.

Treatment: Salvarsanized serum (Swift-Ellis) followed by continuation of same by Dr. Fordyce to the number of 16.

Clinical improvement marked. Occupation resumed.

Laboratorial improvement progressed under continued treatment until March 26, 1919, when all Wassermann tests showed complete negative; cells 5; and Colloidal Gold, 0001000000.

Status praesens: Pains continue under barometrical changes or coincident with acute infections. On April 9, 1928, the following notation was made: General condition good. Catheter life. Gait distinctly ataxic. Walks a great deal in pursuit of occupation. Reflexes lost. Pupils: R. sluggish; L. static. Disks muddy atrophic.

Case II. M. D. J. Aged, 40 years. A physician. first observed October 20, 1919. Born in Iowa. In Colorado ten years. The family history is irrelevant. Previous history included an attack of diphtheria at five, followed by staggering gait,

Case No. 1.		Tabes Dorsalis																	
Date		Serum		Spinal Fluid		Wassermann		Colloidal		Treatment		Results							
		(Heat, Cold)	(Amt. Glob. cc.)	Cells	Heat	Cold	Molner												
=====																			
11/18/14	0			24	+			4440000000	Ungt. Hg.									Romberg	
1/21/15	0			24	+				Blue Mass									Pain (Barometr.	
6/21/15	0		++	0	++++				Swift-Ellis									Static pupils	
8/19/15	0		++	0	++++				(10)									Areflexia	
1/27/19	(2)*	40	+	3	0			0122100000	(Fordyce)									Actively	
2/23/19	(2)*	60	+	1	0			0011000000	No									ambulatory.	
3/26/19		50	+	5	0			0001000000	treatment									since 1918.	
=====																			
Case No. 11.																			
10/19/19	(8)*	10	+++	17	+			1234320000	Intravenous									Stationary.	
12/20/19	(6)*	60	+	3	+			2342100000	Neosalvarsan									Paraplegic.	
2/21/20	(2)*	30	+	3	+			0012210000	Ungt. Hg.									ambulatory	
3/30/20	(4)*	10	+	26	+			1234210000	Mass Hg.									(with crutch).	
9/17/20	(5)*	50	+	0	+			1123320000	Soamin									Pupillary	
10/24/20	(6)*	45	+	2	+			1122210000	Lugol's Sol.									stasis.	
12/31/20	0	20	+	2	+			1233210000											
4/2/21	(6)*	52	+	1	+			0122100000											
6/18/21	+	50	+	4	+			1233100000											
6/24/21	0																		
8/30/21	(1)*																		
2/27/22	(3)*	50	+++	3	+			2333210000											
3/28/22	0	30	+	0	0	+		1233210000											
1/12/23	0	15	++	4	0	0	11100	1233210000											
11/12/23	0	15	++	4	0	+	00000	0123210000											
11/14/24	0		+	0	0	0	00000	1234321000											
10/9/25	0		+	2	0	0	00000	1123332100											
6/9/27	0	15	+++	1	0	+	00000	1234321000											
2/14/27	0	15	+	0	0	+	00000	0012100000											
=====																			
Case No. 111.																			
4/21/19	(7)*	10	+++	6	+			5555543210	Intravenous									General	
6/15/19	(4)*	60	+++	0	+				Neosalvarsan									improvement.	
7/21/19	(6)*	75	+	0	+				40 injections.									ambulatory	
9/6/19	(3)*	92	+	0	+			1123432100	Salvarsanized									with crutches.	
10/4/19	(5)*	90	+	1	+			1234321000	serum									In active	
11/15/19	(4)*	90	+	2	+			4444321000	4 injections.									practice.	
12/20/19	(2)*	85	+	2	+			4444321000	Ungt. Hg.										
1/31/20	(6)*	90	+	2	+			2235411000	Mass Hg.									Slight	
3/25/20	+																	sphincter	
10/19/20	(12)*	75	+	0	++			0123210000										impairment.	
1/25/21	(8)*	50	+	2	+			1234321000										ambulatory	
4/15/21		50	+	0	+			1234310000										stasis.	
=====																			

5/6/21-7/15/24 53 drainages, with 50 to 75 cc. withdrawn.																			
7/14/24	0	50	++	0	0	++	43210	0123210000											
1/7/25	0	60	+	0	0	0	00000	0012100000											
=====																			
Case No. 1V.																			
10/5/18	(10)*	55	++	10	+			0012100000	Neosalvarsan									Clinical	
12/28/18	(4)*	60	+++	10	0				intravenous									Recovery.	
2/15/19	(5)*	60	+	4	0			0012210000	14 injections.										
4/6/19	(4)*	50	+	4	+			0012210000	5 salvarsanized									Residuals:	
6/28/19	(4)*	50	+	10	0			0012100000	serum (2 re-									Slight	
8/16/19	(12)*	50	++	0	+++			3334443210	inforced).									ataxia;	
12/4/19	(2)*	50	+	0	++			2343200000	Ungt. Hg.									pupillary	
2/28/20	(2)*	30	+	4	+++			1234200000	Soamin.									stasis.	
4/1/20	(4)*	30	+	0	0			0123432000											
10/14/20	(4)*	10	+	2	+++			0122100000											
1/29/21		50	+	2	0			1333200000											
4/23/24	0	10	+	2	0	0	00000	0123210000											
4/7/25	0		+	1	0	0	00000	0004000000											
5/26/25	0		+	1	0	0	00000	0110000000											
5/25/27	0	15	+++	0	0	0	00000	2345543100											

* indicates number of times simple drainage was practiced.

strabismus, and some difficulty in swallowing. A severe attack of typhoid at twelve.

In good health until 1903, when he sustained a puncture wound of the left thumb while operating. This was followed by an eruption of the skin of the face, but none in the mucous membranes. No further difficulty until 1907, when there was delay in urination and during the same month weakness in the legs, so that his knees gave way under him momentarily. Three months later difficulty in walking was noted, especially going down hill. No pain. No sincture or girdle sense and no visual disturbance at this time. The difficulty in walking gradually increased, and in 1916, the right pupil became larger than the left.

On examination he presented a typical and extreme ataxia without dizziness. No headache. No subjective sensory manifestations. No vomiting. Urinary control variable but usually dribbling with retardation. Very little ataxia was noted in the upper extremities, and power in the grasp was well preserved. Reflexes: Knee jerk, R. present and increased on reinforcement; L. absent and absent on reinforcement. Ankle Clonus, R. and L. absent. Tendo Achilles, R. and L. present. Reflexes of the upper extremities were extensor. Compression of calf, extension. Oppenheim, extension. Upper and lower abdominals present and prompt. Cilio-spinal absent in all forms. General sensation including tactile, pain, pressure, posture were present and fairly accurate. Eyes: External ocular movements were present in all directions without nystagmus. Pupils: R. 3.5 mm., L. 2.5 mm. Both failed completely in response to light but responded to convergence. Optic Fundi: R. media clear. Disk was sharply outlined, grayish in texture with a marked diminution in the nutrient capillaries. Both eyes approximately the same. The retina of the left shows the remains of two hemorrhagic extravasations at the margins of the disk in the lower temporal quadrant. Fields of vision not impaired. Hearing, taste and smell were intact.

Blood returned a negative Wassermann reaction. The spinal fluid was without pressure, clear, colorless, with 17 mononuclear cells, a marked increase in globulin and a Wassermann positive with .4 cc. Colloidal Gold, 1234320000.

Treatment was instituted of mercurial inunctions alternated with iodine and subsequently arsenic, spinal drainage carried out systematically with the result of prompt improvement in the serological spinal fluid returns, but approximately no change in the clinical. Neosalvarsan having been given intravenously, resort was made to Swift-Ellis technic, while mercurials, iodide and arsenicals were alternated per oram until 1923, when a slight positivity still remained in the spinal fluid. Irregular treatment carried out from this time until December, 1927, when the thermal incubation was negative in all but the 2 cc. dilutions, while refrigerator incubation was positive in all dilutions. The Kolmer was negative throughout and the Colloidal Gold, 0012100000. There were no cells.

The clinical condition remained unchanged. In about 1926, a severe attack of epigastric pains occurred which resembled a crisis, which responded to treatment, and there has been no recurrence.

It should be stated that the mercurial inunctions were used with protest, and the arsenical treatment intravenously and as intraspinal salvarsanized serum preponderated in the proportion of 16 of the former and 10 of the latter.

Case III. R. D. R. Aged, 46. Attorney-at-law.

First observed in 1909. Born in Wales. In Colorado 19 years, not on account of health. The family history other than that the father died of bulbar paralysis is negative. Patient enjoyed good health after the usual exanthemata. A gonorrheal infection in 1907. A primary sore was admitted in 1892. No skin eruption, some sore throat and moderate alopecia.

Treatment was instituted upon the appearance of a sore, mercurial in type, and continued for eighteen months. No return manifestations until 1903, when there were pains and a difficulty in micturition with a loss of the associated subjective sense. The chief complaints included the pains, urinary retardation and dribbling, slight insecurity in gait and station without girdle sense and slight numbness and parathesias in the feet. No cranial nerve disturbance. Objectively there was noticeable ataxia in the lower extremities but none in the arms. Areflexia at the knees and ankles. Diminished sensibility with hyperesthetic areas in the legs. Localization and posture deficient. Pupillary stasis to light, slight tabetic pallor in the optic nerves.

The diagnosis of tabes was disregarded and treatment ignored until ten years later, when the ataxia became markedly paraplegic and in 1919, the spinal fluid revealed the following: Slight pressure; clear, cells, 6; globulin, ++++. Wassermann, positive. Colloidal Gold, 5555543210.

Vigorous treatment was instituted, chiefly intravenous salvarsan, of which he received forty intravenous injections and five intraspinal, with systematic drainage of from 60 to 90 cc., at intervals of from ten to fourteen days, 105 being carried out. The last spinal fluid examination, dated January, 1925, shows complete negative reaction under heat and cold incubation. The Kolmer completely negative. No cells. Trace of globulin. Colloidal Gold, 0012100000. Blood was completely negative to all tests.

An accident occurred, while under treatment, in which the femur was fractured in its middle third. This was promptly wired and was followed by no untoward effect or delay in union. The clinical result was not limited to arrest, but a considerable improvement in the paraplegia followed and the patient is now quite active in the practice of his profession, getting about by the aid of crutches.

Case IV. Mrs. O. S. A woman of 38 years, occupied at hotel work, was first observed September, 1918. The family history and previous history unimportant. The menstrual history is negative but includes one induced miscarriage; almost complete menopause followed an ovariectomy in 1909. A gonorrheal infection at 22. A chancre at 20, followed by eruption. Treatment continued for several months when she was discharged as cured 17 years before. Lancinating pains occurred in 1914, with numbness of the soles of the feet. No girdle sense. Slight urinary dribbling within the past year. Disturbance in coordination. Staggering gait began eighteen months before. Treatment sought because of urinary incontinence, ataxic gait and painful crises, chiefly during summer months.

Objective examination revealed a woman of fair development distinctly ataxic but walking fairly well, definite ataxia in the arms as well as the legs. Widening of the base in walking. Areflexia of the knees and ankles. Slight hypesthesia in the legs and arms. Pupils equal, static to light. Responsive to accommodation and convergence. Fundi normal. Spinal fluid clear, cells 10, globulin positive. Wassermann positive. Colloidal Gold, 0012100000.

Case No. V.

1825

Tubes Dorsalis

J.A.G.

Date

Serum

(Wassermann) (Heat Cold) cc.

Cells

Spinal Fluid

Wassermann

Heat Cold

Kolmer

Colloidal

Gold

Treatment

Results

7/3/17	++++		0	103	+				Tab. Curve	Ungt. Hg.	Marked improvement.
(5)*											Patellars present.
1/6/18			90	+	30	+			0122210000	Blue Mass	Tendo Achilles
(1)*											absent. Pupils
5/4/18			100	+	7	+					fixed.
(2)*											Otherwise clinical
7/6/18			60	0	30	+			0133310000		recovery.
(4)*											
11/9/18			45	+	6	+			0010000000		
(3)*											
1/27/19				+	1	+			0122100000		Residuals:
9/1/21	0	0	10	+	0	0	0		1111000000		Pain crises with
12/20/26	0	0	15	+	2	0	0	00000	0110000000		weather changes..
3/10/28	0	0	15	+	1	0	0	00000	0011000000		

Case No. VI.

1/5/21	+			10	++	28	+				1234532000	Intravenous	Improvement.
(6)*												Neosalvarsan	
2/9/21	+++			20	+	6	+				2553521000	10 injections.	Lost to observation
(2)*												Salvarsanized	after three months.
3/14/21				20	++	2	+				1235532000	serum,	
												10 injections.	
												Ungt. Hg.	

** Cholest'd Alc. Ext. Human Heart -- No Hemolysis
 Cholest'd Alc. Ext. Cp. Heart -- No Hemolysis
 Plain Alc. Ext. Human Heart -- 75% Hemolysis
 Plain Alc. Ext. Cp. Heart -- 50% Hemolysis
 Acet. Insol. Lipoids Human Heart-- No Hemolysis.

Case No. VII.

3/23/18	+++			0	40	0(?)					1123441000	Intravenous	Clinical
(1)*												Neosalvarsan	recovery.
2/10/19	0											15 injections.	
8/14/19	+			10	+++	52	+				5554432100	Ungt. Hg.	
(4)*												Blue Mass	Residuals;
9/20/19				50	++	20	+				4455432000	Soamin	Areflexia;
6/22/10	0											Lugol's Sol.	Pupillary
1/7/21	+			15	+	4	0				1233210000		Sluggishness;
6/7/22	0			15	+	0	0		++		1232100000		Corneal opacity
(5)*													(ulcer).
7/17/22				65	+	0	0	0			1222100000		
7/4/24	0			10	+	1	0	0		00000	0123210000		
8/26/25	0			58	+	0	+			04430	1232100000		
10/9/25					++	2	0	+		11011	1233200000		
1/9/26	0			10	+	0	0	0		00000	0012210000		

Case No. VIII

10/22/18	++++					20	++				1123210000	24 intravenous	Clinical
11/20/18				15	++	16	++				0012100000	injections of	improvement
1/12/19					+	3	++				0012221100	Diarsenol and	is evident;
2/13/19												Neosalvarsan-	actively
3/7/19	0											43 subcu. in-	engaged in
3/31/19				10	+	0	++				0012221000	jections of	politics and
4/28/19	0			16	+	0	++				0012221000	Hg. Cyanide,	law practise.
9/12/19	0	+++			+	0	+				1122100000	also adequate	
												iodides.	Treatment
11/21/19	0	+											discontinued
4/20/20	0	0											
1/21/21	0	0											

Case No. IX

1/19/27	+	+	10	+	75	++++	++++	44400	3455432100	Salvarsan	Improvement.
1/26/28	+	+	15	+	6	++++	++++	40000	1110000000	(intravenous)	
3/15/28	0	0	15	+	4	++++	++++	44210	1122110000	16 injections.	Arsenic dis-
										Spinal drain-	continued
										age. Gluteal	because of
										salvarsan	eczema.
										injection.	
										Ungt. Hg.	Iodine idio-
										Soamin.	syncrasy.
										Malarial in-	
										oculation	Prognosis
											problematic.
											Paretic in-
											volution
											suspected.

*indicates number of times simple drainage was practiced.

Treatment: mercurial ointment by inunction vigorously for fourteen months, with spinal drainage at approximately weekly intervals. January, 1919, spinal fluid was returned negative with Colloidal Gold, 0012100000. A recurrence of positive complement fixation without cell increase, when a series of intravenous salvarsan, 15 injections, and 5 of salvarsanized serum were added. Treatment discontinued in 1921, with a negative spinal fluid and two cells. Colloidal Gold, 0123210000. Without treatment in 1925, the spinal fluid returned negatively with one cell and a completely negative Colloidal Gold. In 1927, a negative Wassermann without cells, but a return of the Colloidal Gold, 2345543100.

Clinical recovery is apparent with residuals of moderate ataxia, pupillary stasis and painful crises coincident with barometric changes.

Case V. J. A. G. Aged, 40 years. Married. Occupation, salesman. First observed June 30, 1917, because of sense of stiffness and numbness in the left side of the face with some discomfort about the rectum. Denied disturbance in walking. Some visual disturbance.

Family history negative.

Previous history includes malaria as a child. Chicken pox and whooping cough and generally "croupy." Mild attack of diphtheria. Frequent attacks of tonsillitis. Rectal fistula had been operated at ten years, and afterward had running sores on the right leg. Heat prostration at 17. Gonorrhea admitted and a chancre at 18. Took potassium iodide for several months.

Examination revealed slight unsteadiness in walking and slight static incoordination with the eyes closed. Both knee jerks were present and prompt. The right tendo Achilles was present and the left absent. Plantars were both flexor and the abdominals were prompt. There was slight diminution of sensory perception throughout the left side. Point pricks were not perceived as pain in the left foot, the left hand and the left side of the face. Eyes: Ocular movement was present. Pupils equal, both failed in response to light and slight response to convergence was retained. Fundi showed a murky nerve with diminution in the capillaries. Fields of vision were not impaired.

July 3, 1917: Spinal Fluid Wassermann, positive. Colloidal Gold showed a tabetic curve. Cells, 108. Globulin negative. Blood serum positive.

Treatment was undertaken with mercury in the form of ointment and Blue Mass by mouth alternately, with spinal drainage aggregating 18, in which amounts from 45 to 100 cc. were removed.

Clinical and laboratorial recovery promptly established with residual areflexia, a partial return of the right pupillary reflex to light, the left remaining fixed. Typical lancinating pains precede barometric changes and were especially prominent during the course of an acute infection. A negative spinal fluid was established in about sixteen to eighteen months. Cells were reduced to one, and in examinations conducted in 1926 and 1928—seven and nine years afterward—the negative reaction of spinal fluid and blood persist. The Colloidal Gold, 0011000000.

The case is particularly interesting in view of the fact that the only deviation from mercurial treatment was a small amount of arsenic in connection with iron, for the purpose of holding the anemia in abeyance. A second interesting point presented here was the freedom from headache following spinal drainage, while the Wassermann remained positive, and the gradual increase of the headaches leading to severe attacks following the last drainages undertaken.

Case VI. C. W. McL. Aged, 34. Married. Occupation, farming. First observed January 5, 1921, because of difficulty in walking, weakness in the legs and painful crises.

Family history was unimportant. Gonorrheal infection admitted at 19. Chancre denied. Considerable alopecia at 21. Four years previously numbness and tingling in both hands appeared, which remitted and recurred last year in the form of stomach trouble which was described as a binding sense about the waist, occurring independent of food. Unsteadiness in the legs followed shortly afterward. Some treatment by injection followed a positive Wassermann treatment in June, 1920. Severe pains occurred in October, aggravated before weather disturbances. Some dribbling of urine was noted. Numbness of foot.

Patient shows a very marked ataxia upon closing the eyes. The knee jerks are absent and absent on reinforcement. Tendo Achilles absent. Pain and postural sense diminished in the legs. Slight bluish-white atrophic appearance to the optic nerve with diminution in the capillaries. Blood and spinal fluid Wassermann strongly positive. Cells, 28 in the fluid. Gold, 1234532000. Ten drainages and five neosalvarsan and five Swift Ellis salvarsanized serum, together with mercurial ointment constituted the treatment. Marked improvement after three months but treatment discontinued and patient lost to observation.

Case VII. A. F. W. Aged, 54. First observed February, 1916, because of double vision and slight disturbance in coordinate movements, especially noticed in golfing. Born in Glasgow, Scotland. In Colorado 26 years on account of asthma. Family history irrelevant.

No disease of childhood recalled. A chancre in 1901, followed by faint eruption of body. He was under treatment for about two years and admitted excessive drinking about this time. Nothing noticed until 1916, or fifteen years later, when a double vision became evident in looking to one or other side.

Examination revealed some static incoordination, slight tremor of the hands. Knee jerks, absent and absent with reinforcement. Tendo Achilles absent. All forms of sensation were prompt, except a possible diminution in vibration sense. External ocular movements were present, except for weakness of the internal rectus. Pupils: irregular and sluggishly responsive to light. Fundi slight grayish-blue cast to the nerve head with diminution in the capillary blood supply. Serum Wassermann, March 23, 1918, positive. Spinal Fluid: cells, 40; globulin, negative. Wassermann, negative; Colloidal Gold, 1123441000.

Mercury by ointment, blue mass, soamin, Lugol's solution, intravenous salvarsan and neosalvarsan resulted in complete recovery from the clinical standpoint, with the residuals of areflexia. Spinal fluid became negative in 1922 with no cells; Colloidal Gold, 1222100000. Blood negative. The thermal incubation was distinctly negative while refrigerator incubation retained two plus. In 1924, blood was completely negative with the exception of the Brendel. Spinal fluid was negative throughout and has remained negative to date. Last spinal fluid examination, 1926, negative to all reactions. Colloidal Gold, 0012210000.

Case VIII. G. P. S. Aged, 50. Occupation, attorney-at-law. First observed February 18, 1919. Born in Denver. Family history negative except that a brother died of alcoholism.

A gonorrheal infection in 1892 and a sclerotic sore in 1914, followed by a positive Wassermann, as a result of which three injections of salvarsan were administered and a course of iodide of

Page No. X.		Tabes Dorsalis									
#1828		A.C.D.									
Date		Serum		Cells		Spinal Fluid			Treatment		Results
		(Wassermann)	(Amt. Glob.		Wassermann	Colloidal)					
		Heat	Cold	cc.	Heat	Cold	Kolmer	Gold			
=====											
6/10/18			+	120	+			0012310000	120 intra-	No improvement.	
7/3/18		40	+++	80	+			0000111000	venous		
9/28/18		30	++	60	+			1123210000	Neosalv.		
(3)*									including	Residuals:	
10/26/18		40	++	120	+			0123210000	20 Swift-	No sensorimotor.	
(4)*									Ellis.		
12/8/18		25	+	20	+			0123210000	Intensive	Psychic changes	
(4)*									mercurial	show parietic	
1/11/19		38	++	27	++			1234321000	(oral and	involution.	
(4)*									inunction)		
2/23/19		60	+	12	+			0012210000	alternated	Sudden fatal	
(4)*									with arsenic.	collapse follow-	
3/29/19		50	+	2	+			0012110000		ing Sulphar-	
(1)*										sphenamine.	
5/17/19		50	++	105	++			1455331000			
9/23/19		50	+++	60	+			5555432100			
(3)*											
10/25/19		40	+	40	+			5555432100			
(1)*											
1/30/20		30	+	40	+			5555432000			
(6)*											
4/10/20		30	+	1	+			0123421000			
(1)*											
10/11/20		50	++	28	+			3455543000			
(6)*											
11/27/20		50	+	15	+			1245433000			
(3)*											
12/27/20		50	+	0	+			2345431000			
5/2/21		40	+	90	+			5555532000			
(4)*											
6/11/21		50	+	12	+			5555542100			
(3)*											

106 treatments with similar variations.											
12/16/24			++	3	+	+	44410	5555432100			
=====											
Case No. XI.											
10/23/19	+		10	+++	25	+		4455432100	Intravenous	Marked	
(4)*									Salvarsan	clinical im-	
11/29/19			50	0	3	+		4444321000	11 injections	provement.	
(3)*									Ungt. Hg.		
1/8/20			50	++	2	+		5555431000	Mass Hg.	Ataxia	
8/14/24	0	0	10	+	0	0	00000	0012210000	Soamin.	diminished.	
3/11/27	0	0	15	+	1	0	++	00000		No painful	
4/27/27			50	+	1	0	++	00000		crises.	
(2)*										Sphincteric	
=====											
Case No. XII.											
2/20/28	0	+++	15	++	210	+	+	44444	0122210000	Ungt. Hg.	Ataxic;
(2)*											no paralysis
3/12/28			60	++	120	+	+	44444	2333210000		walks without
(1)*											support.
4/5/28			65	++	134				2211111100		
(1)*											

* indicates number of times simple drainage was practiced.

potash. Had been well except for spots on the throat and tongue since. A periodical drinker. Drank heavily in sprees.

At the time of observation and for eight months previously there had been sudden spasmodic twitchings in the legs and in the toes. These were somewhat painful and partook of the nature of lightning pains. No numbness nor girdle sense and no disturbance in walking had been observed. Vision undisturbed. No dribbling of urine and there were no complaints.

An examination revealed nothing other than the titubating gait with widening of the base of progression, somewhat increased with the eyes closed. There was distinct swaying upon closing the eyes when standing, with recovery upon opening. The knee jerks were absent and absent on reinforcement, as were also the Achilles jerks. Reflexes in the upper extremities were present. Plantars were flexor. There was some blunting of the general sense perception, especially to a

sharp point in both legs. No extrinsic ocular muscular paralysis. Pupils: 2.5 mm., equal, circular, slightly irregular in outline, the right responding with fair promptness to light and the left more sluggishly and not sustained. Optic fundi were normal. Hearing was not impaired. Taste was not examined. Smell was prompt on either side. Blood was positive with five antigens. The spinal fluid is clear, without pressure, 20 cells and Colloidal Gold, 1123210000. Positive Wassermann with 2 cc.

Treatment instituted included intensive salvarsan serum, neosalvarsan, and forty-three injections of cyanide of mercury together with adequate iodide administration, covering about a year in time. After which all examinations in the laboratory have been negative and apparent clinical recovery has taken place. No observation other than casual has been afforded since 1921. Objective clinical recovery.

Case IX. A. B. L. Aged, 46. Occupation, manu-

facturer. First observed January 25, 1927, and is included because of the belief that this case represents a resistant type of infection which progresses to a paretic involution, notwithstanding the intensity and persistence of treatment.

The family history was negative. Antecedent illnesses include only scarlet fever as a child, without sequels. Influenza in 1920. This is stated to have left him in an impaired condition since. Eczema of a chronic type has existed since infancy.

A gonorrheal infection is admitted and a soft chancre, several in number, without glandular involvement and no eruption. Typical shooting pains in the left leg with numbness in both legs at times after taking treatments. Two years ago, vision became impaired and upon examination of the blood a positive report was returned. No girdle sense. No dribbling. No double vision. Sixteen injections of salvarsan were given, which were discontinued because of the aggravation of the eczema. Spinal drainage was done at the same time. Some gluteal injections of salvarsan were given. This was followed by mercury by mouth and inunction. Iodides were not tolerated because of the skin condition.

Chief complaint is the infection and the inability to control it with adequate treatment in view of his eczema.

He was a well-developed man, 5 ft. 3½ in., weighing 136 lbs. Face was somewhat puffy and edematous and a suggestion of a paretic countenance. Replies were responsive but frequently evasive and a desire to shield or withhold information bearing upon his condition. He volunteered deductions and manifestations of his skin condition, some of which seemed lacking in good judgment. Speech was not impaired. Memory was quite good. General aspect was that of a hypochondriacal neurotic with a touch of feeling of superiority and importance, emphasized by disparaging comments upon the medical interpretation of his case. Slight weakness of the left side of the face. No tremors. No tremor of the tongue, which was protruded in the middle line. There was slight ataxia in the arms. Power in the grasp was equal; Dynamometer, R. 500; L. 360. He walked with eyes open, showing a little widening of the base of progression, more particularly in walking backward and upon closing the eyes, when it increased in degree. There was a distinct swaying on standing with the eyes closed. Passive flexion in the recumbent position showed marked hypotonus in both legs. Patellar reflexes were absent on either side, as were the Achilles. Plantars were prompt, flexor in type. Abdominals were present. There was no marked impairment of superficial sense perception. Eyes: Ocular movements were present in all directions. There was no nystagmus. Pupils: R. 3.0 mm., L. 2.0 mm., right failed in response to light, while the left responded moderately. The left was not influenced by stimulation of the right and the right was feebly affected by light thrown upon the left pupil. The right optic nerve was atrophic and retracted with an absence of nutrient capillaries and an attenuation of all the vessels. The left the same but not so marked in degree. Vision: O. D. 4/20; O. S. 20/30. Fields of vision contracted concentrically. Hearing was not impaired. Blood Wassermann, plus. Kolmers Standard Wassermann, 34400. Brendel, + + + +. Spinal fluid without pressure, colorless. 75 cells. Colloidal Gold, 3455432100. All tests were four plus in thermal as well as frigid incubation.

Malarial treatment was undertaken in November,

1927, reaching temperature of 106°. In December, 1927, complaint of loss of flexor power in the thumb. Weakness in the right shoulder and stiffness in the left knee. Still insisted that he could not take mercury, iodides or arsenic as it excited the dermatitis. In spite of the persistent treatment with-in the tolerance of the patient, prospects appear to be tending toward a paretic involution.

Case X. A prototype of the preceding case, but probably submitted to more intensive treatment. Case concerns R. C. D. First observed July, 1917. Aged, 38 years. Occupation, janitor.

Family history negative with the exception that a brother died of tuberculosis and another of tuberculous meningitis.

A syphilis contracted seven years before, and was under treatment for six or seven years. A serum Wassermann reaction taken each year for three years was returned negative. No alcoholic excess was admitted. Six years before, pains appeared in the legs, and three years later was forced to go to bed on account of the shooting and severe character of these. For four years he had declined in general strength. There had been dribbling of urine in the last two years. No vomiting and no headache. Pains were unusually severe preceding a heavy atmosphere, high wind or rain. Always worse in the evening and these constituted his chief complaint at the time of his first observation. Some numbness in the hands was admitted.

Patient appeared a somewhat angular featured man of good development, 5 ft. 7 in. in height, weighing 120 lbs. Cerebration and memory good. Tongue protruded mesially without tremor. Slight static incoordination, and gait was only slightly unsteady when the eyes were closed. Knee jerks were present, diminished and unequal. Tendo Achilles, absent on the right side; present on the left. Reflexes of the upper extremities present and equal. Plantar reflexes present and flexor. Gordon and Oppenheim negative. Abdominals present; right side slightly increased. No disturbance in general sensation including tactile, pain, joint and posture sense. Eyes: External ocular movements present and no nystagmus. Pupils: equal, 3 mm., right was somewhat irregular in outline. Both failed in response to light but were actively responsive to distance and convergence. Fundi: Normal except for slight attenuation of the vessels. The left disk was somewhat cloudy and presented a grayish muddy appearance. Vision: O. D. 20/30; O. S. 20/50. Hearing not impaired. Serum Wassermann was positive and the spinal fluid, positive. Colloidal Gold, 0012310000.

Treatment of this case was most intensive, including salvarsanized serum, mercury inunction, arsenic by mouth, spinal drainage, notwithstanding which the progress seemed to be only slightly interrupted at times and seemed destined to eventuate in a paretic syndrome had it not been cut short by sudden death following shortly after an intravenous injection of arsphenamine. Post mortem examination was not made.

Case XI. L. F. Aged, 48. Farmer. Negative family history and no previous illness of consequence was admitted.

A gonorrheal and syphilitic infection at the same time, twenty-one years previous to first observation in 1919. There was no eruption but a few mucous patches recalled and some sore throat. Treatment continued for five years and two years ago a series of injections in the buttocks is stated to have been practiced.

Somewhat excessive alcoholic with frequent intoxications.

Shooting pains in the arms and legs began ten to twelve years before, or eleven years after the inoculation. Some numbness of the sole of the left foot. A girdle sense shortly afterward. A lessened sense in the urethral tract during the passage of urine and dribbling in the last year or two, preceded by difficulty in starting. Two or three years before difficulty in walking at night was noted. Chief complaints included the pains aggravated before storms. Some headache. No impairment of vision.

Examination revealed a robust appearing man, 5 ft. 11½ in., in height, weighing 178½ lbs. Articulate speech, memory, cerebation were well preserved. Tongue was protruded mesially without tremor. Walked well with eyes open and showed widening of the base with some ataxia when the eyes were closed. Distinct swaying on closing the eyes when standing with the feet together. Knee jerks, absent and absent on reinforcement, as were the Achilles jerks. Planters were promptly flexor. Special senses: Tactile present and localized fairly well. Pain present but diminished in the foot. Posture impaired more in the left. Localization not accurate and most impaired of the sense phenomena. Eyes: External ocular motion was present and equal. Pupils: R. 1.5 mm., L. 2.0 mm., sluggishly responsive to shade and more, but not actively, to light. Prompt to accommodation of convergence. Fundi: Normal except for slight grayish cast and muddy appearance of the disk. There was no appreciable diminution in the capillaries. Fields of vision were not impaired. Blood Wassermann was positive to heat and cold incubation. Spinal fluid without pressure; 25 cells; Colloidal Gold, 4455432100. Globulin moderately positive. Wassermann positive.

Treatment was continued with fair regularity for eight or ten treatments, including neosalvarsan and spinal drainage. Laboratory findings were much improved. Colloidal Gold curve took on a paretic character, which nearly disappeared. Clinical improvement has been quite marked, as well as laboratorial improvement.

Case was not satisfactory because of the irregularity in which the treatment is undertaken, owing to his frequent absence from the city for long periods of time, but is included as evidencing the responsiveness to mixed forms of treatment.

Case XII. The most recently observed and is presented chiefly because of the spectacular improvement under mercury administration with spinal drainage, in the absence of arsenic treatment of any form.

H. E. S. Aged, 47. Observed February, 1928. The family and previous history were negative except that at the age of 20 a chancre developed, following which two years of mercury and potash iodide treatment was submitted. There have been shooting pains in both legs for the past ten years and worse at night. Following an attack of influenza in December, 1927, the difficulty in walking became pronounced and has since progressed. Chief difficulty was found in the controlling of movement of the legs, worse in the dark. Pains have improved somewhat after the removal of infected teeth a month previously. Some numbness in the toes. No impairment of movement in the hands and sexual power was stated to have diminished. He was a man of excellent development, 5 ft. 11 in. in height, weighing 181 lbs., exhibiting a depression which is of recent acquisition and attributed to the knowledge of the condition and the sensations proceeding therefrom. He showed a marked ataxia in gait and walked with a marked widening of the base, rais-

ing the feet high and striking the foot forcibly upon the ground.

Knee jerk, absent and absent on reinforcement as were the ankle jerks. Reflexes in the upper extremities were present. Plantars, R. slight or absent; L. absent and only the faintest attempt at flexor response was obtained on repeated stimulation. Oppenheim was negative. Superficial sense perception was considerably diminished in the lower extremities, especially below the knees. Pain sense perceived as a burning sensation. Posture sense was well preserved. Localization was fairly well retained. Eyes: External ocular movements present. There was no nystagmus. Pupils: R. 3.0 mm., circular, sluggishly responsive to light and not sustained. L. 2.5 mm., failed entirely in response to light. Optic fundi: Normal. Hearing was not impaired. Blood Wassermann positive. Spinal fluid: no pressure; clear; cells, 210; Globulin ++; Colloidal Gold, 0122100000. Strongly positive to all incubation tests. Kolmer, 44444. Involution here was rapid and complete paraplegia supervened within ten days.

Mercury inunctions were instituted with spinal drainage every seven days. Recovery was quite spectacular and patient is able to walk with scarcely any difficulty, and without the use of even a cane. Continued improvement is anticipated but it is the desire to proceed in the treatment of exclusively mercury and spinal drainage as also the case in Case V mentioned above.

Discussion: The experiences presented in this small series of cases opens the way for considerable comment and speculation. Deductions, however, may be drawn which are at least illuminating and may contribute to a better understanding of the nature and limitations of the therapeutic measures in locomotor ataxia.

First. The great majority of cases are favorably and, indeed, often in a most spectacular way, influenced by anti-syphilitic treatment involving the metallic bases of mercury, arsenic or bismuth. This is especially true if, at the same time, spinal fluid drainage is carried out at frequent intervals.

Enthusiasm born of spectacular clinical improvements should be tempered by the knowledge that remissions frequently occur independent of treatment. False conclusions as to the value of medicinal substances have been drawn, especially before the day of the modern serologic laboratory.

Second: Certain cases seem to progress, with only a suggestion of retardation toward a paretic involution in spite of the most intensive treatment. The persistent advance is more evident serologically than clinically. Distinct evidences of alteration of personality and deterioration develop, but seldom as pronounced as seen in the average primary

general paralysis. Insight is often quite good and euphoria seldom predominant.

The endurance of the clinical and serological recovery is well shown in exclusively mercurial as well as arsenical therapeutics, e. g., Case V has remained unchanged for nine years in clinical and laboratorial aspects.

Third. The value of thorough spinal drainage can hardly be overestimated, in the light of our experience, as contributing to the effectiveness of treatment. The promptness with which the spinal fluid is influenced has led to the suspicion that antibodies of dialyzable protein character developed in the serum are thus aspirated into the thecal sac, chiefly by way of the glandular sources of the spinal fluid.

Spinal drainage should be complete, and as much as possible removed each seven to ten days. Recumbent dorsal position for twelve hours is imperative following drainage. Headache is uncommon during the active stage of the disease but often becomes much more evident as the clinical and laboratorial improvement takes place, reaching acute severity with the negative serological results.

Clinical recovery is more dependable when associated with reduction in cell content and negative Colloidal Gold as well as Wassermann complement fixation.

Wassermann fixation tests carried out under the lowered temperature of a refrigerator rather than in the usual water-bath technic frequently yield frank positive results when the conventional routine returns are negative. Colloidal Gold curves vary from time to time in the same case, but always within the syphilitic zone. A frank so-called parietic curve may frequently be encountered in a typical tabetic, the course of which has borne out the diagnosis as is well shown in Cases III, VII, XII.

The most frequent and persistent residual symptom is the lancinating pains which, in several instances, recur with barometric precision prior to weather changes, in cases in which the most delicate antigens and modified methods of testing have failed to show a sign of serologic evidence of disease for from six to ten years.

DISCUSSION

F. G. Ebaugh, Denver: Tabes represents the most common disease of the spinal cord, and as such offers many suggestions to the practitioner. Successful treatment certainly depends on early diagnosis. The general practitioner sees these cases first, and with reasonable neurological examination, supplemented by an examination of the spinal fluid, much can be accomplished in attaining satisfactory therapeutic results. The question of early diagnosis is somewhat handicapped by the classical descriptions we have in neurological textbooks of advanced symptoms. For instance, ataxia is present, in advanced cases, perforations of ulcer, major sensory disturbance, and we should not depend on a diagnosis on these advanced findings.

It is of interest how through a brief neurological examination the practitioner can make a definite early diagnosis. The absence of reflex in early case, of the early zone of hyperthermic makes the diagnosis easy. It is unfortunate, I think, that judging by the cases, particularly the advanced cases that we see in the clinics, there continues to be a certain timidity about performing lumbar puncture.

The problems of treatment are many. At the present time all cases of neurosyphilis should be treated by all methods that have been devised thus far. The drainage treatment upon which Dr. Moleen's paper was formulated may prove particularly efficacious in early cases. The method we are using at the present time in our clinical studies is that of an intensive course of arsenamine, usually from 10 to 20 successive injections given at weekly intervals, followed by two months' rest period, during which time mercury and the iodides are usual. Spinal drainage is given at infrequent intervals. Many cases have shown improvement after this method of treatment. The recent method of treatment of paines by the Gidural route has given very little evidence of improvement in our cases. This method consists of injections of normal saline or novocaine through the sacral hiatus. It is possible that it acts similar to nerve block. Recently in the hospital Dr. Johnson tried out injection of 2 per cent novocaine through the sacral hiatus for the relief of lightning pains occurring during malarial treatment. Trying it out again on the same patient, there had been no improvement. The twelve cases reported are of extreme interest, in that they illustrate the good results that can be obtained by careful treatment. They are also very impressive on the basis of the detailed serological reports that have been described.

Frederic Singer, Pueblo: I congratulate Dr. Moleen upon his very excellent treatment as established by the histories given here. I rise chiefly to offer a suggestion with reference to the hyperthermic treatment of syphilis. Toxins of various pathogenic organisms and the plasmodium of malaria have been used with mercury and other medicaments now for some years with varying degrees of success. I have thought for some time that an experiment should be made with reference to increasing the temperature of the body by leading up to an impending or partial heat stroke. For instance, you can increase the temperature of the body to any degree desired by increasing the humidity and temperature of the air in a chamber in which the patient may be placed, and by reducing the humidity you may re-establish a normal condition or environment at once.

In the treatment of burns of large areas of the body, an exactly opposite condition must be

secured, one must increase elimination of toxic matter through the uninjured skin by the adequate administration of fluids and a proper regulation of heat and humidity, this I have outlined in a recent paper published in Colorado Medicine.

I wish also at this time to offer the suggestion that some experiments be conducted along the line of regulating the temperature of the body by effecting the retention of toxic products, by covering the patient's body with a paraffine coating which can be readily removed and elimination re-established as you desire.

Dr. Moleen (closing): May I have that fifth slide just a moment. Before going to that, I just want to speak of Dr. Senger's reference to the introduction of hyperpyrexia. The French observers have substituted anti-chancroidal vaccine for the malarial inoculations. They claim that by injections of this serum that they can regulate the temperature to the degree they desire, and also induce a temperature which is readily controlled. It seems to me that the introduction of

some non-specific protein for the induction of temperature is probably the safer method as compared with the one of retention of fluids in the body.

I want to refer to this particular case, because it is unique. It is a case of tabes. You will notice that it was observed in 1917, and has never had anything but mercurial treatment. We have come to the idea that we need some of the more modern treatments, but this case has been treated exclusively with mercury and spinal drainage, as were several others since; and I took occasion to have this one thrown back on the screen to show that since 1919 this man has been negative from all neurological standards.

It seems to me that it is unfortunate that these conclusions should have been read after the discussion, for I feel that some of those who have discussed the paper so well, and for which I wish to express my appreciation, should not have been deprived of what I consider to have been the crux of the situation. Thank you.

PARTIAL GASTRECTOMY FOR PEPTIC ULCERS COINCIDENT WITH LYMPHO-SARCOMA OF THE STOMACH. RECOVERY* **

LEONARD FREEMAN, M.D.,

DENVER

A physician, sixty years of age, entered the Colorado General Hospital, March 18, 1927. For two years, at various times, he had experienced gastric distress three or four hours after meals, which was relieved by alkalies or by food. He had lost thirty-five pounds in weight, together with much strength and energy. There was no definite history of bleeding from the stomach or bowel and no occult blood was found in the feces. The total stomach acidity was 62, with free HCl. 42. An examination of the blood showed reds 5,340,000, whites 4,800, Hemoglobin 84. The urine was negative, as was also a Wassermann reaction. The heart, lungs and prostate were normal.

An x-ray examination had previously been made by Drs. Stephenson and Allen which showed a filling-defect on the lesser curvature of the stomach near the pylorus, the size of a quarter (Fig. 1).

A diagnosis was made by Drs. Meader and Cunningham, and independently by Drs. Hall and Kemper, of peptic ulcer, with possible malignancy, and the patient referred to the Surgical service for operation, which was done by Dr. Freeman on March 22, 1927.

The walls of the entire transverse portion of the stomach and upper duodenum were whitish in color and nearly twice as thick as normal, but not indurated, except near the pylorus, where a firm swelling the size of a dollar was perceptible. In both the

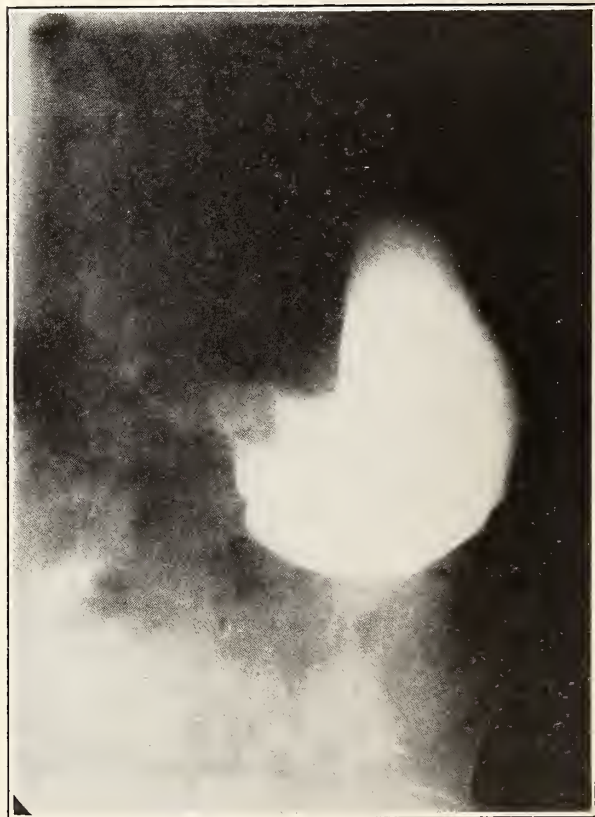


Fig. 1. Before operation (Drs. Stephenson and Allen).

*From the Surgical Service of the Colorado General Hospital (Medical Department of the University of Colorado).

**Delivered before the fifty-eighth annual meeting of the Colorado State Medical Society, Colorado Springs, September 11, 1928.

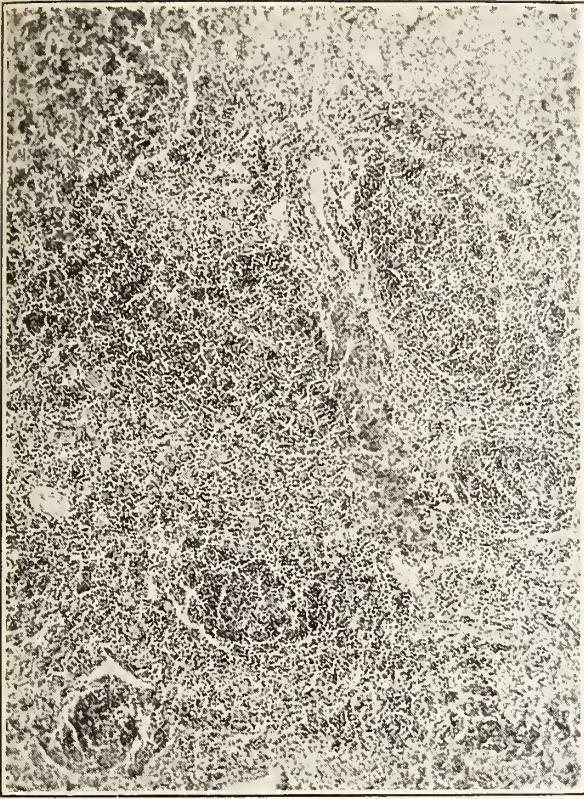


Fig. 2. Path. Dept., Colorado General Hospital (Dr. Johnson).

gastrohepatic and gastrocolic omenta, as well as along the aorta, were numerous smooth, soft lymph-nodes, some of them as large as the last joint of one's thumb. The appendix, spleen, liver and pancreas presented nothing abnormal.

Although the diagnosis was obscure, a partial gastrectomy was decided upon in order to relieve the annoying ulcer symptoms, even though a cure was not anticipated. Accordingly, the horizontal portion of the stomach was removed, together with the first portion of the duodenum (Billroth 1), both the proximal and distal incisions passing through frankly diseased tissues. It being impossible to remove all of the enlarged lymph-nodes, only two were excised for pathological investigation.

Examination of the resected portion revealed a thick uniform, round-celled infiltration of the walls of the stomach and duodenum, involving principally the submucosa, but with extensions into the mucosa and muscularis. (Figs. 2 and 3.) Near the pylorus, however, upon the lesser curvature, were two indurated peptic ulcers, one nearly healed and the other active.

The post-operative recovery was uneventful, in spite of the fact that the resection was done through diseased tissues. The patient gained rapidly in weight and strength, resuming in a short time his professional activities, without gastric disturbances of any kind.

In about six months, although he felt well, the patient noticed a number of moderately enlarged lymph-nodes upon both sides of his neck and in the groins. These gradually became smaller, and at the present time, nearly eighteen months, he is in possession of his usual health and energy. Three months after the operation treatment was begun with the deep x-ray (five sittings), but was discontinued by the patient, with the idea that he was doing well enough without it. It was not resumed for a year when four more applications were made. Coley's fluid was used in small doses for short periods, especially in the beginning, but was never pushed.

X-ray examinations made by Drs. Stephenson and Allen about a year after the resection of the stomach and again at the end of

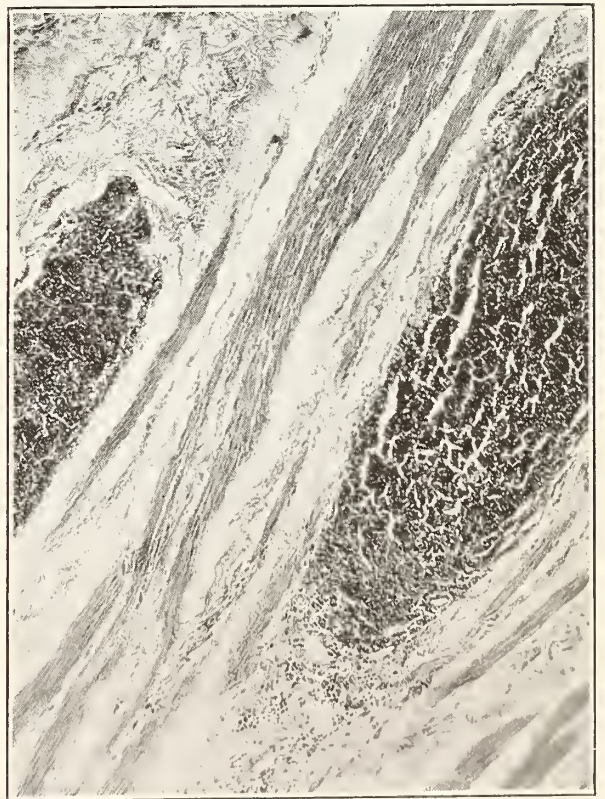


Fig. 3. Path. Dept., Colorado General Hospital (Dr. Johnson).

seventeen months, showed it to be reduced in size, but normal in function and contour, even to the presence of a duodenal cap (Fig. 4).



Fig. 4. About a year after operation (Drs. Stephenson and Allen).

The tissues removed were submitted to several local pathologists, in addition to those connected with the Colorado General Hospital, and four different diagnoses were returned—carcinoma, lymphosarcoma, inflammatory tissue, and chronic granuloma. The specimens were then sent to the Mayo Clinic and to Columbia University, where they were studied by various pathologists, the unanimous verdict being lymphosarcoma. This diagnosis also was made later by Dr. Hillkowitz of Denver from a cervical lymph-node.

Comment.—In reviewing this case I believe one is justified in assuming that two separate lesions of the stomach existed, although they may have been closely related to each other, a similar combination having been noticed by others. One of these lesions was a peptic ulcer, and the other an infiltrating disease of the stomach walls with enlargement of lymph-nodes, the ulcers be-

ing doubtless the cause of most, if not all, of the symptoms.

If the diagnosis of lymphosarcoma is accepted, it is difficult to understand how primary union took place so promptly between the stumps of the stomach and duodenum when both were divided through frankly diseased tissues. It is also remarkable that the stomach remains in such good condition, unless one concedes as does Coley, a profound effect to the x-ray and the mixed toxins of erysipelas and prodigiosus, even when used in as desultory a manner as was done in this instance.

In trying to arrive at a conclusion one should bear in mind that, following purely exploratory laparotomies, a number of remarkable disappearances of undoubted malignant growths of the stomach have been recorded; and also that lymphosarcoma apparently is not a well-defined entity, but seems to be closely related to Hodgkin's disease and possibly even to tuberculosis, as recently has been emphasized by Coley. In fact, it has been observed that in the same patient, lymphosarcoma may exist in one situation, while Hodgkin's is found in another, and that occasionally the microscopic pictures apparently merge into each other.

The most common internal location of Hodgkin's disease and lymphosarcoma is in the mediastinal lymph-nodes; although, very rarely (David) the stomach may be attacked primarily, as well as other portions of the gastrointestinal tract. When the diagnosis is once made by an exploratory incision, the prognosis is not necessarily hopeless, as the disease seems to respond favorably to deep radiation.* And it may also be said that if resections of the gastrointestinal tract are indicated they may be performed with confidence that healing will result, even though the incisions pass through diseased tissues, at least this occurred in the instance herein reported.

In the case under consideration, the pa-

*David, for instance, reports a case of Hodgkin's disease of the stomach apparently cured by radiation (Ann. Surg., Apr., 1928, p. 555), and Coley refers to a number of cures of internal lymphosarcoma and Hodgkin's disease by the use of his fluid combined with the x-ray.

tient at the end of eighteen months is in satisfactory condition, in spite of the diagnosis; which serves to call attention to the fact that, even in the face of apparently hopeless conditions, operations sometimes turn out better than would seem possible, which perhaps compensates in a measure for some of our failures in apparently more favorable cases.

Resume

1. A case of lymphosarcoma (Hodgkin's disease?) of the stomach is reported, with recovery after partial resection followed by radiation and Coley's fluid.

2. In spite of resection being done through diseased tissues, the healing was uneventful and seemingly permanent after eighteen months.

3. Attention is called to the fact that lymphosarcoma and Hodgkin's disease, which by some are considered as closely related to each other, may arise primarily in the stomach, and are amenable, even in this situation, to treatment by operation, radiation and Coley's fluid.

DISCUSSION

C. F. Kemper, Denver: I had the good fortune of seeing this patient before he came to surgery. The facts in the case have been well stated and the theoretical considerations, pro and con, as to the matter of diagnosis, have been considered better than I could do.

For emphasis only, I might say that this doctor was seen eighteen months ago, and he had what we considered almost a perfect ulcer syndrome, but because he was in the cancer age, had lost thirty pounds, had a filling defect in the stomach, there was no question but that he was surgical. Consequently he was sent to the Colorado General Hospital, and this opinion was concurred in by the attending internists and surgeons and he was operated. I was present at the time of the operation and I saw these glands that Dr. Freeman has described, and I was profoundly impressed that he had a malignancy of the stomach, and of course our conclusion was that it was sarcomatous. You have heard the opinion of the pathologists. All that I know about the case is that he was then sick and he is now well. He developed a "rosary" some six months ago, very definitely palpable on either side of the neck. The last time I saw him this had subsided again; that is, their presence was not so marked. It is a very interesting case and a very interesting presentation of it. I hope that the pathologists present will add to it in the matter of diagnosis, if possible. Clinically, I do not see how we can make a definite diagnosis. We are gratified with the result. I thank you.

L. H. McKinnie, Colorado Springs: Gentlemen of this Colorado State Society, I think there is practically nothing to say on this well-presented case of Dr. Freeman's. He has done well to emphasize the care we should take in making prog-

nosis in cases of this kind. All of us have seen cases similar to this, with growths in the intestinal tracts, which seemed to have all the earmarks of malignancy, but when closed up many of them will recover. The confusion with Hodgkin's disease is very embarrassing at times, because of the various lesions we have to consider pathologically. Of course we would start with the benign, with papilomas, which are not difficult to diagnose because they are practically always multiple. Carcinomas are sometimes impossible to diagnose because of the extreme variation and the difficulty of identification even under the microscope. In the stomach they sometimes develop as a mass of fibrous tissue, with very few scattered carcinoma cells. Differences of opinion between Hodgkin's disease and carcinoma are even found among expert pathologists. Hodgkin's disease usually appears in the lymph glands. It also appears in the wall of the stomach. So it may have been in this case of Dr. Freeman's where it may have been possible to have become confused between lymphosarcoma and Hodgkin's disease. Should this have been Hodgkin's disease it was still possible to have resected through this and removed part of the stomach. The microscopic picture in Hodgkin's disease is fairly regular and fairly well established, but it is still somewhat confused because of the inclusion at times of tuberculosis, lymphosarcoma and syphilis. The latter could probably be eliminated only by many repeated Wassermann tests. Lymphosarcomas are not at all rare as isolated lesions of either stomach or intestine. A microscopic examination is usually possible, but in turn may be confused with Hodgkin's disease and syphilis. In such a condition we have a diagnosis to make between Hodgkin's disease, lymphosarcoma, tuberculosis and syphilis.

M. L. Harris, Chicago: I cannot add anything to this case, but I can say that I have met with several similar cases, in the sense of finding growths in the intestinal tract and mistaking them for malignant growths, in which the expectation that the patient was going to die was not fulfilled. I remember a case of a woman of middle age, with a large tumor occupying the right lower portion of the abdomen and extending into the pelvis, on whom I opened the abdomen and found what I thought, and those present thought, to be a malignant growth involving the cecum, the ascending colon. It was so large and so extensive that no operation was attempted, the patient was closed up and the growth entirely disappeared. The patient was seen at intervals afterwards and every trace of the tumor had disappeared. I have seen now several cases similar in nature that were mistaken for malignant, and an unfavorable prognosis, which have recovered, and the thought occurred to me, not wishing to detract any from the remarkable success of the operation, might not this patient have recovered anyway? So many have recovered without operation, that that thought comes to me, from the fact that the glands were not removed, which shows it was not malignant, and that they have disappeared, and the patient has recovered.

Donald C. Balfour, Rochester, Minnesota: I was very much interested in this case, presented by Dr. Freeman, and do not recall in my personal experience any case exactly similar in all its details. It does, however, apparently belong to a group to which Dr. Harris has referred, the examples of which are clinical puzzles. Dr. Kemper has said the patient had been operated upon chiefly because of loss of weight for which

there was no adequate explanation. It is also difficult at the operating table, and to the pathologist to determine the nature of such lesions. Dr. McKinnie brought up the question of syphilis of the stomach and this possibility must be considered, because in these diffuse thickenings of the stomach, associated or non-associated with ulceration, the patient may have a positive Wassermann. I recently resected the stomach of a patient who had been under antiluetic treatment for one month, without any effect on the lesion, and after resecting this thickened portion of the stomach there was still doubt whether it was luetic or malignant.

The nature of Linitis plastica was for long uncertain and now it is known to be a malignancy which in practically all cases, whether or not the stomach is resected, will take the life of the patient. Such an outcome may be greatly delayed, and while this should be kept in mind, the important fact is that this patient has been relieved of all his symptoms and has returned to work. The time factor must always be taken into consideration in all malignant diseases.

There is one other factor which Dr. Harris has mentioned, that this patient might have gotten well without an operation. The patient was, however, disabled and it seems to me if he had gotten well without an operation he probably would have developed enough contraction of the involved pyloric antrum and serious motor difficulty in the stomach to require ultimate operation.

I think Dr. Freeman is to be congratulated on the case and the way it was presented.

W. W. Grant, Jackson, Miss.: I think we may, from the clinical history alone, rule out Hodgkin's disease in this case. Hodgkin's disease commences usually in the neck, and usually in one side of the neck, at least that is the rule, and in most of those cases there are always—unless somebody has taken them out—there are some surface enlarged cells. This is rather characteristic of the typical Hodgkin's disease; you may remove the cells and glands of the neck and they will recur, and ultimately the patients will die, with the disease occurring elsewhere, usually beneath the sternum, very much as they would from ordinary malignant disease. Dr. Coley has told me personally and in letters that he regarded Hodgkin's disease as a form of lymphosarcoma. I do not know that that is proved or settled, but there are cases of sarcoma, at least said by the microscope to be sarcoma, that sometimes recover. The truth is all pathological work is not in error and it is not afraid to make errors in cases of diagnosis, when it says that a case of this kind clinically is not one of Hodgkin's disease but some form of the sarcoma group. As to the question of whether or not recovery will occur without an operation, you can only infer that from the fact that some cases that we expect to die do recover, and they are usually of the sarcomatous group, BUT if the glands were enlarged, as stated in this case, and the disease was of a malignant character, it would, in my opinion, certainly recur.

F. B. Stephenson, Denver: I do not know whether from Dr. Freeman's report you got a very clear idea of the X-ray findings. I am afraid you may have inferred that the x-ray findings pointed to ulcer, or were indefinite. We found a condition that was not at all characteristic of ulcer. Nor was it characteristic of cancer as we usually see it in the x-ray plate.

I will read from our original report:

"The appearance is that there are two masses in the stomach around which the barium appears to circulate. Whether the two are discrete, or are more prominent portions of a continuous lesion, is uncertain. The extent of involvement is not so great as to contraindicate exploratory operation, and the possibility of an operable benign tumor in our opinion is sufficient to warrant such an operation."

We had a check on the patient a few days ago, and the stomach appeared about the same this time as it did previously.

With regard to the x-ray treatment, it is probably a sort of therapeutic test, because lymphosarcoma and Hodgkin's are both extremely susceptible to the x-ray. In cancer of the stomach we are unable to do as much as we would like with x-radiation without damaging other important organs, such as the suprarenal glands. I think there was response to moderate x-ray dosage in this case, and that as a therapeutic test, it points to a diagnosis of Hodgkin's or lymphosarcoma.

R. B. Porter, Glenwood Springs: Quite a few years ago, or shortly after I got out of school, I had a man come to me, who was in the early 40's, with a large tumor in the abdomen.

We had no x-ray facilities at that time, but this man had a clean-cut carcinoma history. I examined him for a few days, possibly several weeks. I told him he was bound to die in about six months.

The symptoms and prognosis of cancer were fresh in my mind, as I had been a student under Dr. Freeman and Dr. Hall, and they had given us all the dope on carcinoma.

After I told him he was sure to die he refused to do so, and died twenty years later, and hated me to the day of his death.

An interesting case came under my care about three years ago. I had done a cholecystectomy and a hysterectomy several years previous. At that time I examined the stomach and pylorus. In fact, everything in the abdomen very carefully, microscopically. This patient came in the office and I examined her. She had been losing weight; some forty or fifty pounds. She was a woman who weighed 250. primarily.

She had a large tumor in the upper abdomen. The stomach seemed to show a filling defect, but she refused operation.

Some three months later I was called to their place. She was having terrific vomiting of blood. There seemed to be a gallon. Of course there was probably some water. But it was an enormous amount of blood. I took her to the hospital, and she vomited blood for some six or eight days, but still refused operation. There was a definite tumor this time. I feel sure that I have examined enough abdomens to be able to tell there was something in this one.

She got better and kept improving, but her relatives decided she must go to the Mayo's. There she was examined. They sent me a telegram for my findings, and I telegraphed what I knew about the case. They could not find anything with x-ray, laboratory, or otherwise. They sent her home with a diagnosis of nothing wrong. I could not believe this, and did not until she came home. She came to me then, and was absolutely negative. I saw her last week and she was still negative.

The question is, what was the trouble? I do not know, nor does anyone else seem to know.

I simply report this as a case of tumor in the abdomen that recovered spontaneously.

S. Withers, Denver: I have been extremely interested in Dr. Freeman's paper, and I want to comment on the sensitivity of lymphoid tumors of the type represented here, to small amounts of x-ray. This group of lymphogranulomas present all of the characteristics which make for radio-sensitivity in tumors. Therefore, when the pathology cannot be exactly determined except to say that it is one of the members of the lymphoid group of tumors or lymphogranuloma, it is safe to say it will react favorably to small x-ray intensities—that is, that the cells will liquify and the tumor will retrogress. I also mention that it is safe to say that the tumor will show some degree of sensibility to Coley's toxins, and to almost any foreign protein, even egg-white subcutaneously injected. When you have the combination of Coley's toxins administered (as I understood was given in this case), combined with a small amount of x-ray, you have them working hand-in-hand and one will enhance the other and make the tumor more sensible to the other.

In this case I would like to suggest that the probable reason the patient is alive is due to the sensibility of the tumor to the small amount of x-ray and Coley's fluid.

With regard to spontaneous retrogression of tumors, I have been very much interested in reading literature lately, reporting several tumors that retrogressed spontaneously. I have reviewed the cases of 6,600 patients with carcinoma and found no spontaneous retrogression. In some 400 cases of sarcoma there was apparently one spontaneous retrogression, but the patient attributed it to the treatment given by an Abrams practitioner.

Dr. Freeman (closing): The diagnosis was made in this case of peptic ulcers alone. The diagnosis was correct, as far as the ulcers were concerned. In addition, however, there was this peculiarity of the stomach, this thickening that we have been discussing, that may have represented some entirely different lesion, perhaps more or less closely related. A similar relationship has been noted before, of peptic ulcers, combined with such an infiltration of the stomach.

Dr. Harris raised the question as to whether the patient might not have recovered without operation. That is quite possible, if we had known what he had and what to do for him. The only thing I claim for the operation was that we found out what the patient had. Whether it caused his recovery or not, I am sure I do not know, but it did relieve him from the peptic ulcers and therefore from his symptoms.

Dr. Balfour brings up the question of syphilis very properly. Several Wassermanns were made and found to be negative, so we felt justified in excluding syphilis.

Dr. Grant suggests that this could not have been Hodgkin's, because Hodgkin's disease begins in the neck. Dr. Grant is perfectly right. In the vast majority of instances that is true, and yet numbers of cases are on record in the literature where Hodgkin's disease, apparently at least, began primarily in the stomach or intestine and sometimes in the lymph nodes in the gastrohepatic ligament or around the aorta.

Dr. Withers speaks of the response to the x-ray and to Coley's fluid. Dr. Coley is very emphatic about that. He says he has cases that are alive after nineteen years; undoubtedly cases of lymphosarcoma or Hodgkin's disease, because he regards the two things as being identical, in all probability, and due, perhaps, to some micro-organism—he puts it in that way. So it is quite

possible that what Dr. Withers says is true, that very small doses of the x-ray may have a profound effect on these things.

The lesson that we are to draw from this particular case of mine, it seems to me, is that sometimes operations that apparently are perfectly hopeless do not turn out as bad as we had reason to suppose when we started them; and also, that exploratory operations are very much in place in many instances. In this connection I might add that recently, when I was at the Mayo Clinic, Dr. Balfour had occasion, in referring to one of his cases, to say that sometimes operations on very bad cancers of the stomach, apparently hopeless, turned out to be of great service to the patient in the end.

ADVANTAGES OF ANNUAL REGISTRATION

The subject of annual registration of physicians and renewal of licenses is gradually receiving more consideration from state examining boards. The comprehensive paper of Dr. Henry Albert, health commissioner of Iowa, published in this issue of the Bulletin, stimulated an interesting discussion at the last annual conference in Chicago.

At present, there are twelve states, namely, California, Connecticut, Delaware, Florida, Idaho, Iowa, Louisiana, Minnesota, Nebraska, New York, Oregon and Pennsylvania, whose medical practice acts require annual registration and, in each of these states, the administration of the law is in charge of the State Board of Medical Examiners. If it is to gain in professional favor, annual registration must be effected with as little inconvenience as possible to the physician.

One advantage in keeping an annual registration of practicing physicians is that such a record offers an effective means of detecting those who are not licensed or otherwise not qualified to practice. In New York, the board of examiners has been very successful in driving irregular practitioners from the state.

The registration fee provides a fund sufficient to defray the expenses of this registration and, in some states, would furnish a sufficient amount to carry out the enforcement and administration of the medical practice act.

A further advantage of annual registration is that it provides for the publication and periodic revision of a directory of licensed physicians in the state, which should be available both to physicians and laymen. Such a publication seems the only means whereby the public can distinguish properly qualified physicians from irregular and unqualified practitioners.

Annual registration of physicians deserves the support of the Federation and is destined to become one of the most helpful adjuncts in regulating the practice of medicine.—Federation Bulletin.

A Dental Survey of Cincinnati

A report entitled "A Survey of Community Dental Facilities in Cincinnati and Hamilton County," by the Mouth Hygiene Council of the Public Health Federation of Cincinnati, has just been published. The council was formed in 1922 as a part of the Cincinnati Public Health Federation to bring about coordination of mouth-hygiene work, eliminate duplication, and plan for future needs. The report covers the dental work done by clinics, hospitals, child-caring institutions, the vocation bureau of the board of education and other agencies, and devotes a chapter to suggestions for a model community dental program.—Children's Bureau.

NEWS NOTES

A MERITED HONOR

The American Academy of Ophthalmology and Otolaryngology held its annual meeting in St. Louis, October 15-19, 1928. Among the physicians in attendance from Colorado were Drs. Carmody, Crisp, Black, Shields, Bane, O'Rourke, Levy, Cooper, Darrow, Greene, and others. The academy singularly honored itself in honoring Dr. Edward Jackson of Colorado. Dr. Jackson was the honor guest of the meeting, a distinction usually conferred on some foreign visitor of international fame. He was presented with a medal of the academy for his distinguished service to ophthalmology and medical education. Dr. Jackson also contributed to the program by reading a paper on "Changes in Refraction." Among the other men who took part in the scientific program Dr. Finnoff gave lectures in the graduate course offered at the time. Dr. Donald O'Rourke read a paper on "Conical Cornea."

The Faculty of the School of Medicine of the University of Colorado held its annual meeting and banquet in the dining room of the hospital, October 8, 1928. Dean Rees presided and spoke at length regarding the Hospitals and Medical School. To those who were present he met the ordinary criticisms of these institutions with compelling logic and candor.

Dr. W. F. Walker and Dr. James Wallace, representing the American Public Health Association, has been a recent visitor in Denver assisting in a survey of health facilities of this community.

At the invitation of the western branch of the American Urological Society, Dr. O. S. Fowler addressed a meeting of that organization held at Del Monte, Calif., October 13, 14, 15. He spoke on the "Importance of Nephroptosis." He also demonstrated his method of nephropexy in an operative clinic. His work was well received.

The nineteen hundred and twenty-eight transactions of the American Association for the Study of Goiter are being printed in book form. This includes not only the minutes of the meeting, but the scientific papers read at the Denver meeting. Those who desire copies may secure them from Dr. Kerwin Kinard, Bryant Building, Kansas City, Missouri. The price is one dollar and fifty cents (\$1.50) per copy.

Dr. William Engelbach of St. Louis has been spending the summer in Colorado Springs. He is offering a course of evening lectures and demonstrations from October 29th to November 3rd. These will be held in the Denver County Assembly room in the Metropolitan Building, Denver.

Dr. George B. Kent has recently returned from a clinical trip in the East.

Dr. Evelyn Price, for many years a resident physician in the State Hospital in Pueblo, died in Denver, October 13, 1928. She had been totally incapacitated for many months previous to her death. She is survived by her mother and sister, both of whom live in Denver. Not only her associates at the State Hospital at Pueblo, but her many friends in the Society share the loss of the family and extend to them their sincere sympathy.

MEDICAL SOCIETIES

Pueblo County

On October 16, 1928, Dr. Fred Singer of Pueblo was the host of the Pueblo County Medical Society. Places were set for forty-five. The only doctors of the Pueblo County Medical Society who did not attend were those who were out of the city. Following a very elaborate dinner, the scientific papers and goiter symposium was given. Dr. M. O. Shivers read a paper on "Hereditary Factors of Goiter." Dr. W. A. Campbell's of Colorado Springs subject was "Embryology and Embryologic Anatomy of the Thyroid Gland." Dr. McClannahan of Colorado Springs spoke on "The Diagnosis of Hyperthyroidism." Dr. H. J. Freeland of Denver on "The Diagnosis of Goiter as Viewed from the Study of the Practical and Theoretical Aspects of Exophthalmic Goiter." Dr. George B. Kent of Denver on "Riedel's Chronic Strumitis."

Dr. George Rice of Pueblo opened the discussion, after which a general discussion followed.

Degree of "Master of Midwifery" for Physicians

Medical practitioners in Great Britain who have held for six months a resident appointment in a recognized obstetric hospital, have attended a recognized prenatal clinic and a recognized infant welfare center for not less than three months each, and have passed examination in obstetrics, infant welfare, and diseases of infancy are now offered a new diploma granting the degree of master of midwifery by the Society of Apothecaries of Great Britain, according to the Children's Bureau of the United States Department of Labor.—Health News.

Leslie Dana Medal

St. Louis, Mo., Oct. 18.—Dr. Park Lewis of Buffalo, N. Y., vice president of the National Society for the Prevention of Blindness, was presented with the Leslie Dana Medal here tonight "for the most outstanding achievements in the prevention of blindness and the conservation of vision" in America. The medal is given through the Missouri Association for the Blind, of which Mr. Leslie Dana is a director, and it is one of the most highly prized marks of recognition in the entire public health field.

The medal was presented to Dr. Lewis, on behalf of the donor, by Dr. Edward Jackson of Denver, Colo., editor of the American Journal of Ophthalmology and dean of the profession in America, who was the first recipient of the award in 1925. Both men, two of the leading ophthalmologists in the country, are attending the meeting of the American Academy of Ophthalmology and Otolaryngology here this week. The inscription on the medal reads: "To Dr. Park Lewis, physician, scholar, humanitarian—for life-long devotion to the prevention of blindness, 1928."—National Society for the Prevention of Blindness.

Kind Old Gentleman: "What do you call those two kittens, Johnny?"

Small Boy: "I call 'em Tom and Harry?"

K. O. G.: "Why don't you name them Cook and Peary after the great explorers?"

S. B.: "Aw, gwan, mister; these ain't polecats."—Black & Blue Jay.

BOOK REVIEWS

Heymans, J. F., and C. Heymans. *The Direct Modifications and the Reflex Regulation of the Activity of the Respiratory Center of the Isolated Head of the Dog.* International Archives of Pharmacodynamics and Therapy. 33(3):273-372. 65 fig. 1927. (Original article in French.)

An organ which has for a long time defied the efforts of experimenters, who would keep it alive during experimentation, is the cerebral nervous system, the brain, the head. Heymans and Kochmann in 1904 described a method of keeping alive the mammalian heart, when isolated, by perfusing it with the blood of a living animal of the same species. This was done by anastomosis with the carotid arteries and jugular veins of the living animal. In 1912 such perfusion of the isolated head of a mammal was accomplished. The present investigation depends on this technique.

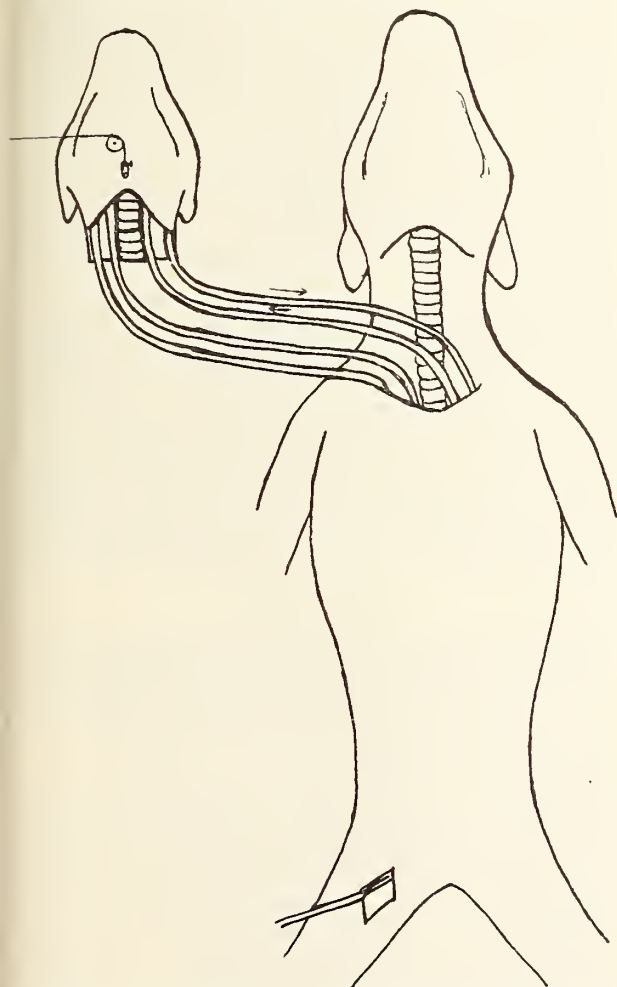


Fig. 1. Schema of the technique of the isolated head of a dog maintained alive by anastomosing it on the circulation of another dog.

Two dogs, A and B, are anesthetized. Dog A serves as "perfusor" of the isolated head of Dog B. The two carotids of the former are ligatured, then sectioned between the two ligatures at the level of the head. They are then connected with the corresponding arteries and veins of the isolated head. The femoral artery of Dog A is prepared so as to register the pulse. The heads of the two dogs are placed side by side on a table. Thus connected with the circulation of the living

Dog A, the head of Dog B can be kept alive for hours. Activity of the respiratory center of the isolated head is evidenced by movements of the larynx, the nostrils, the palate and sometimes by movements of the lips. Those of the larynx are most reliable and they are recorded on smoked paper and reproduced in many figures.

It is a well known fact that increase of CO_2 in inspired air stimulates activity of the respiratory center and diminution of carbon dioxide may result in cessation of breathing. Many other substances have a similar effect on this center? If so this may be called a "humoral" stimulation of the center as distinguished from nervous or reflex stimulation which was also investigated.

HUMORAL EXCITATION. (a) **Lactic acid:** Injection of lactic acid into the circulation of Dog B-A shows that the acid excites the respiratory center. Eight cc. of normal lactic acid increases the rate and amplitude of breathing of the isolated head B. One cc. of the same acid in the perfusing carotid of the head B has the same effect.

(b) **Hydrochloric acid:** Ten cc. of normal HCL in Dog A caused two respiratory movements of the isolated head. This is equivalent in H ions to a blood accumulation of about 112 cc. of CO_2 . Inhalation of CO_2 for five seconds by Dog A provoked seven respiratory movements of head B. For fifteen seconds, there was profound excitation of the respiratory center of B. Of all anions that of carbonic acid appears to be the stimulant par excellence of the respiratory center of the isolated head.

(c) **Asphyxia:** Asphyxia of A by breathing CO_2 caused acceleration of respiratory movements of B, then spasm, and finally paralysis of the respiratory center of B. Hyperventilation of the lungs of A caused slowing and arrest of breathing movements of head B.

(d) 10 cc. NaOH in A. Apnoea for 1 min. 15 sec. in head B.

(e) Anoxemia of Dog A. Increase in rate and depth of respiratory movements of B and increased amplitude of expiratory movements. Then expiratory spasm. In this case the head was connected with the body of Dog B by the vagus nerves. Thus reflex as well as humoral excitations could be aroused.

(f) **Anemia.** Bulbar anaemia provokes immediate paralysis of the respiratory center. This is called adrenal apnoea.

The second and longer part of the investigation has to do with the pneumogastric, reflex regulation of the respiratory center. So far as the humoral regulation is concerned the body of Dog B, having been completely isolated from the head, could have been completely removed and often it was so removed. For the investigation of the reflex regulation of the respiratory center the head remained connected with the body only by the vagus nerves. The femoral pulse of Dog B as well as of Dog A was now connected with a sphygmomanometer for registration of the pulse and blood pressure. Stimuli applied to the lungs and blood of B could now have an effect on the respiratory center.

When artificial respiration of the trunk of Dog B was stopped, resulting of course in asphyxia of trunk B, the isolated head executed deep and frequent respiratory movements of the dyspnoeic type. This must be reflex and not humoral as the head of B is supplied with blood from the circulation of Dog A. Dilatation of the lungs of B produced reflex inhibition of the respiratory movements of the head of B.

Finally, in order to avoid artificial respiration, a third dog, C, was employed to supply the heart-

lungs circulation of the trunk of Dog B and Dog A supplied circulation of the isolated head of Dog B, isolated except for connection of the head with its body by the vagus nerves alone, as already described. By experiments with this preparation it was shown that the centripetal, vagal excitations, which govern the respiratory tonus, and the reflex inhibitions and stimulations of the respiratory center, do not arise from the lungs.

Although the highly developed technique of the investigation is of great interest, space will permit no further description of it. Only the conclusions reached can be stated. It is evident that the respiratory center is subject to influences both "humoral" and reflex and that the movements of the lungs are not the cause of the reflex influence.

Conclusions. 1. A technique has been described which permits us to maintain alive the completely isolated head of Dog B by anastomosing it upon the carotid-jugular circulation of Dog A.

2. The respiratory center of the completely isolated head possesses an autonomous activity which is expressed in the form of cephalic respiratory movements.

3. Lactic acid and hydrochloric acid are direct humoral excitants of the respiratory center of the isolated head.

4. Carbonic acid determines an excitation of the respiratory center of the isolated head which is notably more intense than that provoked by hydrochloric or lactic acid. The anion HCO_3 proved itself more active and more specific than the cation H or the anions of other acids.

5. Anoxemia, asphyxia, and anaemia at first excite the respiratory center of the isolated head but soon depress it to complete paralysis.

6. Hyperventilation of the lungs of the perfused dog and the injection of NaOH in the perfused dog induce an apnoea of the isolated head.

Reflex Pneumogastric Regulation of the Respiratory Center

1. The technique of the "isolated" head connected with its trunk only by the vagus nerves and maintained alive by anastomosing it with the double carotid-jugular circulation of a perfused dog, permits the separation of the respiratory actions of central origin from respiratory actions of pneumogastric, reflex origin.

2. The activity of the respiratory center of the isolated head is then under the regulatory influence, centripetal and continuous, of the vagus nerves which alone connect the head with its body. After section of these nerves the respiratory movements of the head become notably slower and deeper (respiratory type after vegetomy).

3. Profound inflation of the lungs of trunk B, stopping when they are dilated, produces an inhibition of the activity of the respiratory center of the head B in a state of expiration. This reflex, expiratory arrest continues only during the pulmonary dilatation and corresponds to the reflex of Breuer-Hering.

4. Complete collapse of the lungs of trunk B by stopping artificial respiration after pneumothorax produces a reflex inhibition of the respiratory center of the isolated head in the state of inspiration. This inhibition occurs only at the moment of pulmonary collapse and does not continue during such collapse.

5. Arrest of lung action of trunk B in the expiratory state without pulmonary collapse does not produce inhibition of the inspiratory reflex.

6. A centripetal tonus influencing the activity of the respiratory center of the isolated head and due to the vagus nerves persists after the sup-

pression of all respiratory movements of trunk B and arrest of its lungs in expiration.

7. In the majority of cases, there is discord between the rhythm of the respiratory movements of the isolated head and the pulmonary movements of its trunk. This rhythm or synchronism is realized only when there is complete physiological, respiratory equilibrium both central and peripheral. Is the cause of this rhythm a mechanical reflex of pulmonary origin (reflex of Breuer-Hering) or is it due to rhythmic variations of the pressure and composition of the blood in the cardio-aortic circulation? Most of the experimental evidence pleads in favor of the second hypothesis.

Hyperventilation of the lungs inhibited the action of the respiratory center. This was not due to mechanical distention of the lungs. Circulatory hypertension likewise had an inhibitory effect. Hypotension and asphyxia stimulated the respiratory center. It was shown that there is reflex as well as humoral hyperpnoea and dyspnoea.

Confirmatory evidence of the above conclusions is supplied by many control experiments but finally a technique, similar to that already given, is described which permits the maintenance alive of the isolated "heart-aorta" of Dog B. As a result of this technique evidence is obtained that "the crossing of the aorta and the heart is the point of origin of pneumogastric, respiratory reflexes" (p. 364). "Besides the heart, the crossing of the aorta (arch of the aorta (?)) constitutes the point of origin of reflex, respiratory influences (p. 365).

The state of activity of the respiratory center is due, therefore, to an equilibrium between central causes and reflexes of excitation and inhibition. Intra-cardiac and intra-aortic blood pressure, the properties of peripheral hormones and peripheral blood, and the functioning of the heart in relation with the peripheral circulatory and respiratory conditions are the three principal factors which condition the activity of the respiratory center by means of centripetal impulses of the pneumogastric nerve.—L. W. Cole, University of Colorado.

Graves' Gynecology: It is now twelve years since William P. Graves published his "Gynecology." In response to the great popularity of the book there have been several revisions and frequent reprintings. We have now an industrious revision of former texts.

The growing knowledge of internal secretions, particularly as it relates to genital physiology, has been extensively treated. One dares not neglect this promising part of physiology although there is nothing in medicine more tantalizing. We know much of it and yet little. When we try to apply what we seem to understand, the experiment fails. Our drug firms and a few therapeutic enthusiasts are still content. They cover our desks with products ever new and writings always optimistic. Macbeth saw before him a dagger with its handle toward his hand, but when he sought to grasp it, it was gone. The analogy is evident. But Graves' chapter is judicious and informing.

The section on tumors has been rewritten and includes, as was necessary, an account of our ripening knowledge of endometriosis. Many other improvements add value to the new edition.

The illustrations are numerous, beautiful and enlightening. Many of them are by the author, so the book may be said to be illuminated by the author's own lamp.

C. S. ELDER.

WYOMING MEDICINE

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EDITORIAL NOTES AND COMMENT

INJURIES OF THE HUMAN EYE

By Sweet Clover Stalks

Sweet clover, either of the white or yellow variety, has of late become a common plant in western agriculture.

First considered an undesirable weed, it is now recognized as one of the most useful legumes and its cultivation is rapidly increasing and its spread throughout the middle western states has been most rapid.

With its introduction becoming more universal, the chances from injury by reason of accidents will increase and it may not be amiss if editorially we call attention to some observations and studies concerning accidental eye injuries in which the damage to the cornea has been due to dry sweet clover stems.

About eight years ago a young man, when drunk, fell and a sweet clover stock cut the cornea and anterior capsule of the right eye. No treatment was given at the time of injury and about six hours later we saw the patient. A large cut in the cornea and lens was evident but no foreign body could be found in the eye. The eye was cleaned up and dressed with sterile dressing. The next morning these dressings were removed and yet there was no evidence of infection. No redness of the conjunctiva and no pain. A perfect recovery so far as any infection or inflammation followed.

A year or so after this case a small child was brought in who had been shot in the eye with a bow and arrow, the arrow being made from a stalk of sweet clover. This stalk had just been cut and made into an

arrow. The accident occurred soon after the arrow was made.

This cornea was perforated and the lens injured. Here again there was no infection, no redness of the eye and a perfect recovery after the lens substance had been removed.

The question at once occurs, is there any antiseptic action exerted by sweet clover? Or is it the absence of infection germs that causes no infection in cases of sweet clover injuries?

A study of infusions and tinctures of sweet clover as applied to induced infections in animals' eyes might give us some light on these questions. The fact remains that so far no infection has ever occurred from the many sweet clover injuries we have seen and treated.

E. W.

Dr. W. A. Graham, wife and sons have returned from their western tour, having covered over 6,000 miles, in sight seeing. They traveled in two cars, and had the unusual experience of making the whole journey without mishap, until within three miles of home, the car leading and driven by one of the doctor's sons, suddenly turned into the gutter and was overturned. This was done by the driver in order to prevent his colliding with a stalled car, with lights out, which was in the road. Within this car, sleeping, was the wife and daughter of its owner, and a serious wreck of both cars would have likely resulted but for the young man's quick decision to run his car into the ditch. No one was seriously injured.

Dr. and Mrs. Ewald Olson of Lovell, Wyoming, are expected home this week after having visited friends in Idaho, following the park meeting, and later journeying on to visit relatives in Kansas. The doctor has not fully recovered from his recent operation for mastoid infection.

Dr. L. Harmon Wilmoth, formerly of Hudson, announces his removal to Lander, Wyo., where he will occupy the offices of Dr. J. L. Linn during Dr. Linn's absence.

TREATMENT OF DIABETES DURING PREGNANCY*

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and

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The woman with diabetes who is treated by adequate diet and correct doses of insulin is to outward appearances healthy; she maintains her weight, and her strength is sufficient for the duties she has to perform. If the diet and the administration of insulin are technically correct, menstruation is regular and normal, and ovulation presumably proceeds normally. It is therefore not surprising to find that more cases of diabetes during pregnancy are being cared for than before the era of insulin.

A comprehensive bibliography of the early literature on this subject is contained in Lanbie's recent paper. In 1926 we reported the successful completion of the pregnancy of two young women with diabetes both of whom had been under treatment for severe acidosis and depended largely on insulin when they became pregnant. The diabetes is no worse for the pregnancy, and the two children are healthy. At the time of our former report only a few cases of diabetes during pregnancy treated by insulin had been discussed in the literature, but since then a number of articles have appeared. We have attempted to tabulate the essential data in all such cases since 1923, that is, for the period in which insulin has been universally available (tabulation). The seven cases presented in this paper are also included in the tabulation making the report of a total of fifty-five pregnancies in fifty-one women with diabetes. Six of the fifty-one women died. Twenty-nine children lived. Nineteen survived only a day or two after birth or were born dead. Six therapeutic or other abortions occurred.

A comparison of these data with those compiled before the era of insulin leads to a more hopeful view of the prognosis of diabetes during pregnancy, and yet this

experience shows the dangers of the condition and the seriousness of the outcome if the necessary precautions are neglected. Diabetes was inadequately controlled or entirely neglected until late in the course of eleven of the fifty-five pregnancies. In these eleven cases three of the six maternal deaths and ten of the twenty-six fetal or infant deaths occurred. Two of the remaining three maternal deaths were due, possibly, to hypoglycemia, an avoidable complication, as will be shown.

REPORT OF CASES

Case 1. The patient was twenty-nine years of age, was 5 feet, 3.5 inches in height and weighed 115 pounds. She had been married two and a half years, and had one child fourteen months old. Slight glycosuria had occurred during the first pregnancy, but disappeared after delivery. The family history was not significant. At the age of twenty-three an ovarian cyst had been removed. Menstruation had begun at the age of twelve and had been normal and regular. The last menstrual period occurred in September, 1926. In October, 1926, there was an onset of polyphagia, polydipsia and polyuria, with loss of weight and strength. In December glycosuria was discovered. By this time the patient had lost 27 pounds. The blood sugar was 0.181 gm. for each 100 c. c. A diet consisting of carbohydrate, 100 gm., protein, 50 gm. and fat, 180 gm. was prescribed. Fifteen units of insulin daily kept the urine sugar-free until February when a cold made it necessary to increase the dose to 24 units daily. In April the fasting blood sugar was 0.065 gm. and the dose could be reduced considerably. Symptoms of diabetes were absent and the weight previously lost was gradually regained. During March and April the patient complained of being tired and hungry before meals, and insulin was discontinued. She came to the hospital May 3, 1927, in the eighth month of pregnancy. The blood sugar on admission was 0.095 gm. for each 100 c. c. A single specimen of urine contained a trace of sugar.

The trip to The Mayo Clinic precipitated labor. A premature male child, weighing 2,500 gm. was born without incident. At delivery the blood sugar of the mother rose to 0.166 gm. for each 100 c. c., the sugar in the cord blood was 0.110 gm., and that of the baby 0.100 gm. Three hours later the mother's blood sugar was 0.128 gm. for each 100 c. c. It continued within normal limits during the fifteen days in the hospital. The blood sugar of the baby on the day after birth was 0.088 gm. for each 100 c. c. The first specimen of urine excreted by the baby contained a slight trace of sugar; subsequently each specimen was negative for sugar.

The mother was placed on the previous diet the second day after the birth of the baby. She did not require insulin while in the hospital, or while

*Read at the joint meeting of the State Medical Societies of Montana, Idaho and Wyoming, Yellowstone Park, August 29, 1928.

she was nursing the baby, and the baby appeared normal in every way. Analysis of the breast milk showed fat 6.8 per cent, lactose (hydrate) 6.7 per cent, and protein 1 per cent. After the baby was weaned the mother again needed insulin in order to maintain normal blood sugar and keep the urine free from sugar. She has remained in excellent health and the baby also has been unusually well. In July, 1928, the diet was carbohydrate, 82 gm., protein, 50 gm., and fat 180 gm. and the insulin dosage was 7 units before the first meal, none before the second meal, and 7 units before the third meal. The urine showed "slightest possible trace of sugar or none."

We were fortunate to have the close coöperation of the patient's physician, Dr. Stuart Adler of Winona, Minnesota.

Case 2. The patient was twenty-nine years of age, 5 feet 4 inches in height, and weighed 145 pounds. She came to the clinic for a general examination because of increasing deafness and a general "run down" condition. Glycosuria was discovered in the course of the examination. The patient had been married ten years and had one child aged seven. Although the patient had not menstruated for six weeks, she did not consider herself pregnant, and it was not until she had been under observation for three weeks that the diagnosis of pregnancy was made. The diabetes proved to be moderately severe so that with a diet consisting of carbohydrate, 75 gm.; protein, 50 gm., and fat, 175 gm., 20 units of insulin were required to control hyperglycemia and glycosuria. After two months the dose could be reduced to 5 units daily on the same diet. Delivery took place at the home July 9, 1927; the child, a boy, weighed 2,600 gm. After delivery a soft diet was given for two days and then the previous diet was resumed. Twenty units of insulin daily were required after delivery, but the patient nursed the baby and a month later was able to discontinue insulin. The patient has remained well, and the baby is normal; his urine does not contain sugar. The patient was warned that after lactation had ceased she might require insulin, but by very careful dieting she has been able thus far to do without it.

The treatment and the delivery at the patient's home in this case were conducted by Dr. L. W. Baskett of Big Timber, Montana.

Case 3. The patient, aged forty-one, 5 feet 1 inch in height and weighing 125 pounds, first came to The Mayo Clinic in acidosis in November, 1924, and has been under observation since then. A brother had died of diabetes. She had been married thirteen years, had had one miscarriage, one stillbirth and one full-term normal pregnancy before diabetes developed, two years previously to admission. Menstruation had always been regular and normal. Six months previously, symptoms had increased; she had a ravenous appetite, thirst, frequency of urination, was weak, and had lost 22 pounds. Acidosis was marked, the face was flushed, the breath smelled of acetone, the tongue was dry and parched, and the skin was dry. The blood sugar was 0.259 gm. for each 100 c. c., the carbon dioxide combining power 34 volumes per cent. Acidosis was counteracted in twenty-four hours by the usual therapeutic measures; the patient remained in the hospital twenty days. The dismissal diet consisted of carbohydrate, 57 gm., protein, 39 gm., and fat, 197 gm. At first 30 units of insulin were necessary, but later the dosage was reduced to 25 units. The patient continued the weighed diet at home and was able to keep the urine free from sugar except on one occasion when she had tonsillitis. She became pregnant

and soon afterward found it necessary to increase the dose of insulin. She returned to the hospital for observation in the seventh month of pregnancy. The urine did not contain sugar; the blood sugar was 0.086 gm., the carbon dioxide combining power was 43 volumes per cent, and the urea 12 mg. for each 100 c. c. Insulin was reduced to a minimum in order to avoid danger of abortion from hypoglycemic insulin reaction. In order to insure the adequacy of the diet in vitamins and salts it was rearranged to include 500 gm. of milk, 15 gm. of codliver oil, two egg-yolks and 25 gm. of liver daily, making carbohydrate, 74 gm.; protein, 50 gm., and fat, 168 gm. On this diet and 10 units of insulin daily, the urine remained sugar-free. A month later the blood sugar was 0.089 gm. for each 100 c. c., so that the insulin was reduced to 5 units daily. Although there was a small adenoma of the thyroid gland, the basal metabolic rate was normal. The patient stated that her general health was better than it had been since the onset of diabetes; and, in fact, as good as it had ever been.

A child, a girl weighing 3,200 gm., was born at full term, August 19, 1927. Low forceps were used after episiotomy, because of protracted labor and slowing of the fetal heart. The blood sugar of the mother was 0.090 gm. for each 100 c. c. at the time of delivery. The cord blood sugar was 0.109 gm. for each 100 c. c. The urine remained free from sugar on the usual diet without insulin until the eighth day when a faint trace was present; the blood sugar on this day was 0.100 gm. for each 100 c. c. The patient nursed the baby after the third day, although supplementary feedings were given at first. Nursing was continued five months.

When the baby was two months old the mother and child returned for examination. At this time the blood sugar of the mother was 0.096 gm. for each 100 c. c. The urine did not contain sugar. Roentgenograms of the bones of the mother and child did not show evidence of rickets or dietary deficiency. Both the baby and mother seemed normal in every particular. Later, February 20, 1928, some time after the child was weaned, insulin had again become necessary in a dosage of 25 units. The child has a diabetic inheritance from the father's family as well as from the mother's and will be watched for diabetes.

Case 4. The patient, a multipara aged thirty-nine with four healthy children, the youngest aged six, first came to The Mayo Clinic December 14, 1925. Symptoms of diabetes had developed acutely in the preceding August, and the patient was following a qualitative diet. Two years before admission accidental miscarriage occurred at three months. Another miscarriage at four months had occurred in 1922. The cervix was found to be badly lacerated into both fornices and everted; the perineum was lacerated and relaxed. The urine contained glucose and diacetic acid. The fasting blood sugar was 0.180 gm. for each 100 c. c. The Wassermann reaction was negative. Control was established with a diet of carbohydrate, 57 gm.; protein, 40 gm.; fat, 185 gm., and 35 units of insulin. The patient's height was 5 feet, 5 inches; her weight was 130 pounds.

At a second examination at The Mayo Clinic in January, 1926, the urine was sugar-free and the fasting blood sugar was 0.130 gm. for each 100 c. c. with the insulin dosage reduced to 20 units.

In January, 1928, the patient wrote that she thought she was pregnant. The urine showed traces of sugar, so she had increased the insulin dosage and violent insulin reactions had occurred. In February her physician advised therapeutic

abortion and for this reason the patient revisited the clinic. The day of her arrival vaginal bleeding occurred and spontaneous incomplete abortion followed three days later; operative removal of the placenta was necessary. It was now extremely difficult to control the diabetes. There were wide fluctuations of blood sugar during the day, hyperglycemia accompanied by acidosis and succeeded by hypoglycemia with symptoms of insulin reaction. The severity of diabetes seemed to have been aggravated by this pregnancy. In April, 1928, with resumption of the former diet, the insulin requirement was 36 units. However, the patient had been somewhat careless about her diet.

Case 5. The patient, a primipara aged thirty-one with diabetes of moderate severity, came to The Mayo Clinic February 16, 1928. An acute onset of polyuria, polydipsia and pruritus in August, 1927, had led to examination elsewhere and the discovery of glycosuria. A restricted low-calorie diet had been followed conscientiously without the maintenance of complete control. The last menstruation had occurred November 2, 1927. The patient was 5 feet, 6.75 inches in height and weighed 133 pounds. She had weighed 150 pounds six months previously. The pregnancy was judged, from the size of the uterus, to be in the fourth month. The urine contained sugar and acetone. The fasting blood sugar was 0.137 gm. The Wassermann reaction was negative. Control was established with a diet of carbohydrate, 69 gm.; protein, 50 gm., and fat, 216 gm., and 12 units of insulin. We were later informed by letter that a miscarriage had occurred May 16, 1928 (at from six to seven months); the infant weighed 1,150 gm. and expired shortly after delivery. The patient had had a severe attack of influenza three weeks previously, and four days before the onset of labor had fallen downstairs and burned herself against a stove. Glycosuria had been perfectly controlled from the time she left the hospital and in view of this the miscarriage may be more properly attributed to the accident than to diabetes. There were no complications from the miscarriage and the intensity of the diabetes was apparently unaffected by the pregnancy.

Case 6. The patient, a primipara, came to The Mayo Clinic May 21, 1926, with diabetes of acute onset and early severity. On admission the fasting blood sugar was 0.220 gm. and the first twelve-hour specimen of urine contained glucose and acetone. The patient's height was 5 feet 1.5 inches; the weight was 147 pounds, having fallen from 167 pounds. There were no complications. Control was established with a diet of carbohydrate, 85 gm.; protein, 37 gm., and fat, 138 gm., and 50 units of insulin. Subsequent reports indicated that the patient had adhered to the diet faithfully and by October 12, 1926, had been able to reduce the insulin dosage to 20 units. A letter dated December 15, 1927, stated that a baby was born July 7, after an uncomplicated pregnancy. She had been obliged to increase the dosage of insulin to 55 units during pregnancy, and tested the urine after each meal as well as in the morning and evening. In December she was taking 40 units of insulin before breakfast and 15 before supper and she had increased the carbohydrates to 90 gm. instead of 85. At birth the baby weighed 5 pounds, 9 ounces, and five months later 15 pounds. Confinement in this case occurred in Dr. Winette's Clinic in Des Moines. On December 15, 1927, the insulin required was 44 units; the diet was carbohydrate, 90 gm.; protein, 37 gm., and fat, 125 gm.

Case 7. The patient, a multipara aged twenty-

nine, first came to The Mayo Clinic November 24, 1925. She had had five children and two stillbirths prior to the development of diabetes in June, 1925. The first symptoms of this, excessive thirst and polyuria, began ten days after she had received a severe electrical shock. She had lost 35.5 pounds between June and November, 1925. Her height was 5 feet, 6 inches.

Although the glycosuria had been intense, it was controlled by qualitative restriction of diet and the patient was dismissed on this regimen without insulin. The blood sugar was 0.182 gm. on admission and 0.126 gm. on dismissal. The Wassermann reaction was not obtained. Adenoma of the thyroid gland, without signs of hyperthyroidism, was present. The basal metabolic rate was -5 per cent.

A letter dated September 18, 1926, from Dr. G. L. Atkins of Jackson, Minnesota, stated that he had just observed the patient in pregnancy. The urine was sugar-free, but loaded with acetone. The patient entered hospital in a semi-conscious condition. She was given 1,000 c. c. of 5 per cent glucose solution, and insulin to take care of it; she became conscious in about four hours and a Cæsarian section was then performed. The baby was dead.

December 18, Dr. Atkins reported that the patient was restricting her diet just enough to control the diabetes without the use of insulin, and that she was feeling very well. December 24, 1927, he again reported that the urine was sugar-free, but that the patient was using insulin, 10 units three times a day, and carefully following dietary restrictions.

Discussion of Cases. Of these seven cases of pregnancy in diabetes without maternal mortality, four (Cases 1, 2, 3 and 6) terminated successfully both for mother and child. In one (Case 7) the child was born dead; in this case diabetes had been neglected during pregnancy. In two cases (Cases 4 and 5) abortion occurred in the second and seventh months, respectively. In one of these (Case 4) severe insulin reactions may have played a part and precipitated the miscarriage; the patient, however, was a multipara and had been badly lacerated from previous deliveries. Two abortions which had occurred prior to the development of diabetes had been attributed to these lacerations. In the other case of abortion (Case 5) the patient suffered a severe attack of influenza with fever and three weeks later, three days before miscarriage, a fall downstairs and a burn, these accidents probably accounting for the miscarriage.

None of the women was definitely injured by pregnancy. In four cases the tolerance was as good after pregnancy as it had been before. In Case 4 abortion was followed by a period in which it was difficult to suppress glycosuria on account of fluctuating

hyperglycemia and hypoglycemia, and the insulin requirement was about 20 units greater than it had been before pregnancy.

The two cases previously reported and these seven cases make nine cases of diabetes in pregnancy in which treatment has been supervised in The Mayo Clinic since the introduction of insulin. Six of the nine pregnancies terminated successfully. It is generally recognized that the prognosis is more favorable if diabetes begins during pregnancy than if it is present when pregnancy occurs. In the six successful cases, at least four of the patients had potentially severe diabetes before the pregnancy under consideration, and maintained health by accurate dietetic management and insulin, Cases 1 and 2 (1926), and Cases 4 and 6 (1928). In three of the six cases the mother was able to nourish the child for many months. In two others, the mother nursed the child but supplementary feeding was necessary. In the sixth case lactation was copious but nursing was interdicted. There was no evidence of rickets in any of the infants and their development was apparently satisfactory. In none of the six cases was the weight of the child excessive although the mothers had received a large enough diet so that none of them lost weight and all gained slightly during pregnancy.

The size of the infants is worthy of note because a number of authors^{9,10} have reported that the children of diabetic mothers may be very large; this is usually attributed to an excessive supply of sugar.

Hydramnios was not a complication in any of the cases. Hydramnios is said to be of frequent occurrence in the pregnancy of diabetic women, attributed to fetal diuresis provoked by hyperglycemia.²⁴ In Labbé and Couveaire's case hydramnios would develop whenever the patient neglected the diet, and disappear again on return to the strict regimen.

Diets Low in Carbohydrate and Protein and High in Fat

The absence of complications in our cases, and the fact that the infants were well developed and rugged, that the mothers were able to supply them with milk, and that the

mothers survived pregnancy with unimpaired teeth, bones and muscle, and generally without loss of tolerance, has an important bearing in connection with recent controversies on diet in diabetes.

Our procedure in diabetes, much like that of Woodyatt, Newburgh and Marsh, Campbell, Priesel and Wagner, and Petré, is one in which protein and carbohydrate are reasonably restricted and adequate, although not excessive; calories are supplied by fat. It is our practice to base the determination of the "rest" or "basal" calorie requirement on the patient's age, height, sex and "ideal" weight according to a nomograph that is drawn from the Du Bois standards and to feed 30, 50 or 70 per cent more than these basal calories in order to allow for work. The estimation of the "work" calories is admittedly rough. The average diet will contain not more than 75 gm. of carbohydrate, 50 gm. of protein, and 150 to 250 gm. of fat*. Of late more or less criticism has been leveled at diets of such construction, so-called "high fat diets." It is said that they may provoke arteriosclerosis. We have not seen signs of calcification of arteries, increase of blood pressure or retinal changes in a number of patients who have been on such a regimen for as long as eight years. It is said that the patient nourished largely with fat feels less fit and is less capable of physical exertion, but we are inclined to question this. We have changed to the high carbohydrate procedure in a number of cases in which there had previously been restriction of carbohydrate, without any difference in the patient's sense of well-being, and, on the other hand, we have fed so-called "ketogenic diets" to a large number of epileptic patients and such patients after a short period for readjustment tell us that they feel remarkably fit. One young woman, a skillful tennis player, has been able to play five and six sets of the most strenuous tennis day after day on this ketogenic regimen. The ketogenic diet contains much less carbohydrate than our usual diets for diabetes contain.

*The calculation of these diets is described in detail in Wilder's Primer for Diabetic Patients, Ed. 3, Philadelphia, W. B. Saunders Co., 1927.

A possible explanation of the success with diets low in carbohydrate and rich in fat is our insistence on planning these diets so that they will provide an abundance of vitamins and minerals. The significance of this must be emphasized. One must not think of these diets in terms of their glucose equivalent alone. The satiety value of the meals requires attention, as McLester has emphasized, so also does the matter of bulk and that of the supply of the vitamins B and C, and of lime and iron. This is particularly true, of course, in pregnancy. Another item of possible importance is the fact that protein is restricted in our diets. There is some evidence to indicate that fat is more harmful when protein is liberal. Few of our diabetic patients receive more than 50 gm. protein, none more than 1 gm. for each kilogram of their "ideal" body weight. The proteins of milk and eggs are given priority, and very little meat is fed. The chief advantage in restricting the carbohydrate content of the diet is the greater ease of management. Patients on such a diet are less sensitive to insulin, daily blood sugar fluctuations are less pronounced, and the daily insulin requirement is minimal.

The six successful cases reported here constitute, it would seem, ideal nutrition experiments affording reasonably good proof of the healthfulness of the diets. Within fairly broad limits one may therefore replace carbohydrate by fat with impunity, provided that the protein is restricted, the protein foods are wisely selected, and vitamins and minerals are supplied abundantly.

Carbohydrate restriction in pregnancy. Lanbie lays great emphasis on the disturbance of the ketogenic-antiketogenic balance of pregnancy. It is most important, he says, to avoid ketosis, "for once it develops it is more difficult to control than in the ordinary diabetic and if marked is accompanied by much nausea and vomiting." He stated: "It is impossible to give the optimum fatty acid to glucose ration of 1.5 to 1.0 (Woodyatt's gram ration). A ratio of 1.0 to 1.0 should be given after five or six months, and it may be necessary to diminish the ratio still further in the last two months."

The Woodyatt gram ratio of the diets given in the later months of pregnancy in nearly all of our cases was approximately 1.5 to 1.0, and we are uncertain whether it is fortunate or unfortunate that Lanbie's excellent article failed to attract our attention until after these pregnancies had been completed. If we had been acquainted with this article we might have lacked courage to feed the patients as we did. As it is we are inclined to regard Lanbie's apprehension of dietetically induced acidosis as excessive. The Gerhart (diacetic acid) test was negative in the cases in which delivery took place at The Mayo Clinic and nausea or vomiting are not mentioned in the reports received from patients delivered elsewhere. It is true, of course, that the toxemia of pregnancy with its attendant nausea, vomiting and anorexia, leads to a high degree of ketone formation (starvation acidosis) and that this condition is effectively treated by the administration of glucose. It is also true that marked ketosis will itself provoke vomiting. However, the mild degrees of ketosis resulting from such dietary adjustments as we have made do not cause nausea in the absence of toxemia. Wilder and Winter have given this subject considerable attention, maintaining, with Shaffer, that the normal ketogenic threshold is well above the Woodyatt gram ratio of 1.5 to 1.0; in fact, nearly twice this gram ratio, the molecular ratio being 2:1. This threshold may be lowered in certain pathologic conditions, as has been admitted by Wilder, but whether it may be lowered by pregnancy is a question that is difficult to decide. Observations such as those of Lanbie do not prove that it is lowered in pregnancy because they do not provide data on which the total metabolism can be accurately computed, and it is the ratio of the fatty acid to the glucose of the food materials actually burned that must be determined, not the ratio of fatty acid to glucose in food eaten. We are inclined to consider a diabetic patient entirely safe from the danger of acidosis when he metabolizes as much as 50 gm. of carbohydrate daily; that is, when the food contains 50 gm. of carbohydrate and the urine is sugar-free.

Danger comes only when some of the 50 gm. escapes utilization; that is, when the urine contains sugar. Our pregnant patients received from 60 to 75 gm. of carbohydrate daily.

The influence of carbohydrate restriction on the fetus. We have already commented on the observation of others that the fetus may be abnormally large in pregnancy with diabetes due to the excessive supply of sugar. This may only occur if the diabetes of the mother is neglected. However, the children in all of the cases in our series were small, perhaps owing to the fact that the mothers received diets fairly low in carbohydrate. There is some evidence, although inconclusive, that the fetus uses carbohydrate more or less exclusively as a source of energy. The respiratory quotient obtained by measuring the oxygen and the carbon dioxide of the umbilical arteries and veins in animals has been found to be near unity.⁴ ⁵ Also there is some question whether fat crosses the placental barrier.²⁸ ⁴⁰ It would be interesting to place pregnant animals on a diet containing a minimal amount of protein and very little if any carbohydrate. So far as we know, this experiment has never been done, although Frank, Smith and Carey, and Osborne and Mendel have successfully reared young rats on diets deficient in carbohydrate. From the results of our clinical observations on pregnant women whose diets were relatively poor in carbohydrate and whose babies were all small, it would be expected that the young of animals fed during pregnancy on diets poor in carbohydrate would be small but healthy.

The Influence of Pregnancy on Tolerance

During the early months of pregnancy the tolerance may be somewhat depressed so that larger doses of insulin are required than were necessary before conception. This is readily accounted for on the basis of the ordinary malaise (toxemia) of early pregnancy. It does not seem to have attracted the attention of those who have written on pregnancy in diabetes, but it was shown in three of our cases, Case 2 (1926) and Cases 3 and 4 (1928). As pregnancy advances the tolerance may rise, as illustrated by Cases

1 and 2 (1926) and Case 3 (1928); this was also noted, even before the era of insulin, by Joslin and others.

Gray and Feemster, in 1926, described the case of a multipara who had had diabetes, probably mildly, for fifteen years, and gave birth to a living child. The diabetes was neglected during the pregnancy. On the third day after delivery the mother died, and on the fourth day the child died with symptoms of hypoglycemia. Necropsy failed to reveal a satisfactory reason for the mother's death, but in the case of the child the appearance of the pancreas which contained hypertrophic insular tissue in an amount estimated to be many times normal, supported the supposition that excessive insulin formation had caused fatal depression of the blood sugar. The authors proposed that this insular hypertrophy occurred in response to the demand of the maternal tissues for insulin. In 1915 Carlson and Ginsburg performed a classical experiment which has been confirmed by others and is widely quoted. Pregnant dogs, nearly at term, were depancreatized and it was found that diabetes failed to develop so long as the fetal tissue and placental connections were intact, but followed immediately on the birth of the pups. These observations suggest that the islets in the fetal pancreas assist the maternal organism either by liberating insulin to the mother, as proposed by Gray and Feemster, or by maintaining a rapid fetal utilization of sugar and thereby lowering the maternal blood sugar. In either case the mother's tolerance is elevated. The subject is not without serious, practical significance. The mother must be cautioned to reduce the insulin dose as her tolerance rises; otherwise hypoglycemic reactions with convulsions may occur and they might threaten fetal life. Lanbie's patient noticed that fetal movements became imperceptible after insulin reactions. The danger of the infant's death from spontaneous hyperinsulinism after delivery as in the case of Gray and Feemster, is to be dreaded most, in cases in which diabetes has been neglected. In cases in which glycosuria and hyperglycemia have been held in check,

hypertrophy of fetal islets has probably not occurred. Nevertheless we have adopted the rule that the child shall be fed immediately after birth. Instead of waiting, as is customary, until the mother can provide nourishment, we feed other breast milk within an hour after birth and continue six feedings daily thereafter.

Pregnancy may influence diabetes in another particular which is of practical significance; namely, through depressing the renal threshold for glucose. It is well known that normal pregnant women may excrete small amounts of glucose without manifesting a rise of the blood sugar above physiologic limits, so-called renal glycosuria. Lanbie stated that this occurs in about 45 per cent of normal pregnancies. Although the condition may be present at any time during pregnancy, it usually makes its appearance at about the sixth or seventh month and disappears toward the end of pregnancy or after delivery. The amount of sugar excreted is usually small, the percentage averaging about 0.2 to 0.3. The phenomenon may coexist with true diabetes and when it does it adds to the difficulty of treatment. It is useless in such cases to attempt to maintain complete absence of sugar in the urine; traces will persist even when the blood sugar is normal or even subnormal. In our Case 1, this was not recognized and for a time needless anxiety was aroused and larger doses of insulin were used than were necessary. In these cases frequent blood sugar determinations are necessary in order to calculate the correct dose of insulin.

The Influence of Lactation on Tolerance

There does not seem to be any rational objection to having the diabetic mother nurse her child. Even in the days before insulin, Joslin advocated it "for the diversion which it affords the patient." In five of our cases the patients were able to nurse their infants and did so without harm; in fact, usually with improved tolerance.

The observation that the diabetic mother requires less insulin, that is, that a higher tolerance is maintained during lactation is probably explained, as Macleod and his associates suggested, by the transference of sugar

from the blood to the breasts. If so, the phenomenon is comparable to the increased tolerance that is obtained by diabetic patients from muscular exercise. In both lactation and muscle work, sugar is utilized by agencies which possibly function independently of insulin. In the case of the muscle it is reasonably certain that glucose is utilized over the glycogen and lactic acid route without the intermediation of insulin. In the case of the mammary gland it is probable, although not proved, that the conversion of glucose to galactose and lactose does not require insulin. The exact nature of the action of insulin is still in dispute, but there is reason to believe that one function of insulin is to depress the formation of glucose from protein. Administration of insulin, therefore, is equivalent to temporarily suspending the sending of sugar to the blood. Under these circumstances, when an injection of insulin is given at a time when the rate of removal of sugar by lactation or muscle work is accelerated, a deficit of sugar must result. This would seem to account for the special insulin sensitiveness of lactating women. The subject is not without great practical significance. As was mentioned earlier, several cases of maternal death suggest hypoglycemia: the case of Gray and Feemster, that of Kaufmann and Küster, and that of Kraul. In one of Bowen's cases the mother is said to have been very sensitive to insulin after delivery. In Ehrenfest's case the mother was hypoglycemic on the second day after delivery and several of our patients manifested insulin sensitiveness. We would urge that this danger be kept in mind and extraordinary care be exercised in the administration of insulin to nursing diabetic women.

Summary and Conclusions

Seven additional cases of pregnancy in diabetes, with four living children and without maternal mortality, are reported. Pregnancy need not be discouraged because of diabetes and therapeutic abortion is no longer justifiable on the ground of diabetes. The treatment of diabetes during pregnancy, however, presents several unusual difficulties and calls for expert medical attention.

Neglect of the diabetes during pregnancy may provoke diabetic acidosis, increased susceptibility to infection, cause overdevelopment of the fetus with corresponding difficulties at delivery, provoke hydramnios, or lead to hypertrophy of the islands of Langerhans in the fetus, with resulting danger to the infant after delivery. Excessive administration of insulin may provoke hypoglycemic convulsions and thereby terminate fetal life. This will result either in abortion or in intoxication of the mother by the macerated fetus and aggravation of the diabetes. The mother may be hypersensitive to insulin not only during pregnancy but also after delivery so long as lactation continues, and severe hypoglycemic reactions can only be avoided by administering insulin with the greatest precaution.

The peculiarities of diabetes in pregnancy make it desirable to place the patient in the hands of a physician who is thoroughly familiar with the management of diabetes. A rigidly regulated diet is essential, urinalysis must be made several times daily, and periodic determinations of the blood sugar may not be safely neglected.

A diet relatively high in fat and relatively low in carbohydrate and protein has proved to be entirely satisfactory for pregnant women with diabetes. The chief advantage of such a diet is the relative ease with which the blood sugar can be controlled, the smaller doses of insulin required, and therefore the relatively smaller danger of overdosing with insulin. Our experience also suggests that excessive fetal development may be avoided by diets of this type. It is important to plan these diets so that they provide an abundance of vitamins, suitable protein and adequate lime and iron.

The eugenic question of whether children born of diabetic mothers will later become diabetic cannot be answered at the present time, but if the diabetic patient is to be prohibited from child-bearing on eugenic grounds, child-bearing by his or her non-diabetic brothers and sisters should also be prohibited since they may carry the diabetic

character in the same degree and transmit it to their offspring.

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TABULATION Cases of Diabetes With Pregnancy Reported Since 1923*

Author—	Patient's Age, Years	—Diabetes— Pre-Compl- ceding Preg- nancy, nancy, Years Months		—Outcome—		Child's Wt., gm.	Comment
		Years	Months	Child Died after sixteen hours	Mother Lived		
Reveno	42	2	—	Severe	Lived	3410	Diabetes neglected until seventh month, delivery precipitated by acidosis.
Graham	34	1	—	Severe	Lived	—	Complicating influenza combated successfully
Lublen	24	—	5	Severe	Therapeutic abortion	—	Unusual severity of diabetes beginning in pregnancy
Wiener	24	3	—	Severe	Stillbirth	—	Diabetes incompletely controlled
Ehrenfest	—	—	6	Moderate	Lived	3410	Mother hypoglycemic second day after delivery
Potjàn and Nickel	32	3	—	Severe	Lived	4000	Diabetes incompletely controlled, insulin not used
Fitz and Murphy	23	3	—	Severe	Abortion at two months	—	Abortion, the result of accident
Ambard	35	—	5	Severe	Died after twenty-three hrs.	—	Diabetes neglected, premature delivery precipitated by acidosis, child's urine contained sugar
Labbé and Couveaire	—	—	—	Moderate	Lived	—	Intermittent hydramnios
Peters	22	—	1?	Moderate	Lived	3000	Delivery at eight months
Henneberg and Beckel	22	—	4	Mild	Stillbirth	—	Diabetes neglected, severe acidosis caused death in utero of seven-month fetus
Merklin, Wolf and Oberling	—	—	—	Severe	Died	—	Child's urine contained sugar
Gray and Feemster	44	15	—	Moderate	Died after four days	3330	Diabetes neglected, child died in hypoglycemia, islands of Langerhans hypertrophied, mother's death unexplained (lactation hypoglycemia?)
Soler	—	—	—	Moderate	Lived	—	Complicating heart disease of mother
Parsons, Randall and Wilder—	—	—	—	—	—	—	—
Case 1	20*	3	—	Moderate	Lived	3860	Delivery at term
Case 2	34	2	—	Moderate	Lived	1700	Delivery at seven and a half months
Kaufmann and Küster	—	4	—	Severe	Lived	3250	Mother died in hypoglycemia five days after delivery
Strouse and Daly—	—	—	—	—	—	—	—
Case 1	28	—	3	Mild	Lived	—	Insulin not required
Case 2	28	1	—	Mild	Lived	—	Glycosuria during two previous pregnancies
Case 3	32	3	—	Mild	Lived	—	Insulin not required
Case 4	30	—	Early	Mild	Lived	—	Diabetes neglected
Holzbach	29	1	—	Moderate	Died	4250	Hydramnios
Lambie	32	—	5	Moderate	Lived	3860	Delivery at term
Pickett—	—	—	—	—	—	—	—
Case 1	—	—	—	Mild	Died	—	Tolerance improved in later months of pregnancy in both cases
Case 2	—	—	—	Mild	Lived	4550	—

*Erroneously stated as 30 in previous report.

—Diabetes— Pre-Compli- cating Preg- nancy, Years Months				Patient's Age, Years		Outcome		Child's Wt., gm.	Comment
Author—	Preceding pregnancy, Years	Months	Age, Years	Months	Degree	Child	Mother		
Kronenberg	—	1	—	—	Moderate	Lived	Lived	2680	Mother died five months later in coma
Bingel	—	5	—	—	Moderate	Lived	Lived	—	Mother nursed infant
Kraul—	—	—	—	—	—	—	—	—	—
Case 1	—	5	30	—	Moderate	Died	Died	2150	Mother died in coma four days after delivery
Case 2	—	6	21	—	Severe	Abortion at 6½ months	Lived	100	Stormy convalescence
Bowen—	—	—	—	—	—	—	—	—	—
Case 1	—	4	33	—	Moderate	Lived	Lived	3700	Acidosis at delivery (cesarian section)
(Two pregnancies)	—	—	—	—	—	Died after eight hours	Lived	2405	Acidosis at delivery
Case 2	—	3	22	—	Severe	Stillbirth	Died	4500	Toxemia of pregnancy (cesarian section)
Case 3	—	2	36	—	Moderate	Lived	Lived	2700	—
Case 4	—	2	33	—	Mild	Lived	Lived	2700	Obese patient
Case 5	—	3	24	—	Mild	Lived	Lived	4850	Obese patient
Case 6	—	4	34	—	Severe	Died after eight hours	Lived	4550	Hydrannios, insulin reactions after delivery
Case 7	—	3	28	—	Severe	Died after three days	Lived	—	Premature delivery at seven months
(Three pregnancies)	—	—	—	—	—	Abortion at five months	Lived	—	Abortion precipitated by acidosis
Abortion at three months	—	—	—	—	—	Lived	Lived	—	Diabetes neglected
Standar and Peckham—	—	—	—	—	—	—	—	—	—
Case 1	—	—	40	—	Mild	Stillbirth	Lived	1923	—
(Two pregnancies)	—	—	—	—	—	Lived	Lived	1926	—
Case 2	—	5	38	—	Mild	Lived	Lived	4670	Insulin not used
Case 3	—	9	38	—	Moderate	Lived	Lived	3090	Not receiving insulin nine months after delivery
Case 4	—	—	27	—	Mild	Lived	Lived	3398	Insulin not used
d'Aprille—	—	—	—	—	—	—	—	—	—
Case 1	—	4	—	—	Moderate	Died	Lived	—	Diabetes neglected
Case 2	—	1	—	—	Moderate	Died	Died	5000	Hydrannios, diabetes neglected
Walker—	—	—	—	—	—	—	—	—	—
Case 1	—	—	—	—	—	Lived	Lived	—	Cesarian section
Case 2	—	1	34	—	Severe	Lived	Lived	4100	Diabetes more severe after pregnancy
Wilder and Parsons—	—	—	—	—	—	—	—	—	—
Case 1	—	1	29	—	Moderate	Lived	Lived	2500	Glycosuria in preceding July
Case 2	—	3	29	—	Moderate	Lived	Lived	2600	—
Case 3	—	5	44	—	Severe	Lived	Lived	3200	—
Case 4	—	3	39	—	Severe	Abortion at two months	Lived	—	This and two previous abortions attributed to severe lacerations at previous deliveries
Case 5	—	0.08	31	—	Moderate	Miscarriage at 7 months	Lived	1150	Miscarriage attributed to respiratory infection and accident
Case 6	—	2	26	—	Severe	Lived	Lived	2550	Diabetes neglected
Case 7	—	1	29	—	Mild	Died	Lived	—	—

*Dr. Pricilla White, in the latest edition of Joslin's Treatment of Diabetes Mellitus, records eighty-nine pregnancies in fifty-seven diabetic women. Forty-two of the children lived. The maternal mortality is not given. Many of these pregnancies occurred in the era before insulin and the patients treated since the introduction of insulin are not specified.

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NEWS ITEMS

Dr. W. E. Gossett and family of Twisp, Washington, recently visited their old friends in Sheridan and Buffalo. The doctor practiced medicine in Buffalo many years ago and was in the Spanish American War with the Wyoming boys.

Dr. Mark H. Smith, who used to practice in Casper and who is now located in Los Angeles, writing his opinion of the Wyoming Society and Wyoming's connection with Colorado Medicine, says: "To me this is the first exposition of medical spirit and attainment that Wyoming has ever evinced. I had expected to hear that Wyoming, through this initial introduction was planning 200 per cent improvement and effort in the ensuing year.

"To me it appears that to curtail or restrict the program of Wyoming Medicine would be like dropping the high school and upper grades of the public school system in the state, and reverting to the old log school house and few weeks' attendance in the year.

"Wyoming should at least be consistent in its medical requirements. If it is to require first class attainments in its licentiates, it should keep apace with other states that it makes this essential demand from. Otherwise, the failures and tailenders of other states, through reciprocity, may be expected to represent the medical profession within Wyoming, where seemingly so little effort would be manifest to fairly represent medical progress.

"With its demand for representation with the states of advanced and insistently required standard in medical ability, Wyoming, with wealth of soil and solicitation from investors and citizens from without its borders, must pay the price for neglecting any feature which fails to lower a preventable mortality or curtail or prevent an avoidable cost in the way of sickness.

"I know of no greater benefit to the doctor in practice than is conveyed to him through the medical interests in the State Journals. It should be also a matter of intense pride to every doctor in the state. I would be ashamed for the worthiness of Wyoming medicine and its splendid doctors, to see the privilege granted them through Colorado Medicine neglected. To me, it would seem as though a door to a wonderful vista, recently opened to them was closed.

"I am optimistic enough to believe that Wyoming medicine has the spirit of progress and determination that will not tolerate a backward step, for in time, the retreat must be realized and greater effort be expended to make up for lost opportunities and retrace abandoned ground.

"There are too many who are faithful to the trust placed in their keeping, in Wyoming medicine, to submit to such loss to their prestige and self-esteem, too many who know the value of effort and necessity of medical association to suffer further isolation in medicine for their state.

Faternally yours,

MARK H. SMITH, M.D."

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

OFFICERS, 1927-1928

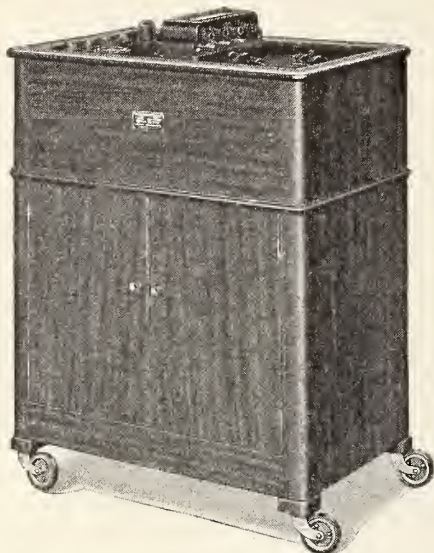
President, William A. Sedwick, Denver.**President-elect**, Samuel B. Childs, Denver.**Vice-Presidents**, 1st, James M. Lamme, Walsenburg; 2nd, W. B. Hardesty, Berthoud; 3rd, R. H. Finney, Pueblo; 4th, R. B. Porter, Glenwood Springs.**Secretary**, F. B. Stephenson, Denver.**Treasurer**, L. W. Bortree, Colorado Springs.**Delegates to the American Medical Association**: Senior, T. E. Carmody, Denver, term expires 1928; Alternate, Ralph Johnston, La Junta, term expires 1928; Junior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929.

Councillors:	Term expires
District 1. Ella A. Mead, Greeley	1930
District 2. G. P. Lingenfelter, Denver	1929
District 3. John R. Espey, Trinidad	1928
District 4. W. W. Crook, Glenwood Springs	1931
District 5. A. W. Robbins, Durango	1932

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STANDING AND SPECIAL COMMITTEES

Committee on Scientific Program: J. J. Waring, chairman, Denver; E. D. Downing, Woodmen; Frank R. Spencer, Boulder.**Committee on Credentials**: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; George M. Noonan, Walsenburg.**Committee on Public Policy**: C. F. Kemper, chairman, Denver; Edward Jackson, Denver; Henry Sewall, Denver; John R. Espey, Trinidad; Edward F. Dean, Denver; N. S. Madler, Greeley; Crum Epler, Pueblo.**Committee on Publications**: Charles S. Elder, chairman, Denver; C. S. Bluemel, Denver; George A. Moleen, Denver.**Auditing Committee**: W. K. Reed, chairman, Boulder; O. P. Shippey, Saguache; Chas. J. Lowen, Denver.**Committee on Necrology**: Philip Hillkowitz, chairman, Denver; W. B. Hardesty, Berthoud; C. H. Graves, Canon City.**Committee on Medical Education**: S. Fosdick Jones, chairman, Denver; L. H. McKinnie, Colorado Springs; Chas. N. Meader, Denver.**Committee on Social Medicine**: R. P. Forbes, chairman, Denver; J. R. McDonald, Jr., Denver; B. B. Blotz, Rocky Ford.**Committee on Medical Literature**: W. A. Jayne, chairman, Denver; Gerald B. Webb, Colorado Springs; A. J. Markley, Denver.**Committee on Hospitals**: Maurice Rees, chairman, Denver; O. S. Fowler, Denver; C. O. Giese, Colorado Springs.**Committee on Military Affairs**: Colonel Paul C. Hutton, chairman, Denver; George P. Lingenfelter, Denver; John Bouslog, Denver.**Committee on Mental Hygiene**: F. B. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; Edward Delehanty, Denver; Philip Work, Denver; H. A. LaMoure, Pueblo; Frank T. Stevens, Colorado Springs.**Committee on Periodic Health Examination**: C. E. Harris, chairman, Woodmen; F. M. Heller, Pueblo; J. B. Crouch, Colorado Springs.**Committee on Co-operation With State Pharmaceutical Association**: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.**Committee on Cost of Medical Care**: Maurice Rees, chairman, Denver; James J. Waring, Denver; Frank R. Spencer, Boulder; P. O. Hanford, Colorado Springs; George H. Curfman, Salida.**Committee on Industrial Commission Fees**: Frank W. Kenney, chairman, Denver; F. B. Stephenson, Denver; T. E. Beyer, Denver.**Committee on Selection of An Executive Secretary**: The President, Secretary and Treasurer of the Society with the assistance of such members of the Society as the President deems advisable.**Committee on Finance**: W. A. Jayne, chairman, Denver; C. F. Hegner, Denver; L. W. Bortree, Colorado Springs.**Curator of Exhibits**: E. D. Downing, Woodmen.**Committee on Local Arrangements**: (Will be announced in a later issue of this Journal.)



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The Radiological Society of North America will hold its 14th Annual Convention in Chicago, December 3rd to 7th, inclusive, 1928. The Drake Hotel, Lake Shore drive and North Michigan avenue has been selected as the headquarters. We are assured of ample accommodations and exceptionally reasonable rates and of the best and most efficient service.

Make your plans for this year include Chicago's greatest radiological convention. Every physician who is interested in this branch of diagnosis and therapy is welcome.

There are no registration fees, no additional expense. Plans are under way now to secure reduced transportation rates.

The ladies local Reception Committee is making plans for the entertainment of all visiting ladies. These plans include theater parties, luncheons, shopping tours and sight-seeing trips, with generous hospitality extended to all visitors.

Much attention is being given to arranging for scientific commercial exhibits. These exhibits will afford a post graduate course of instruction in nearly every branch of medical science. Clinics covering radiological problems as well as other branches of medicine will be given every day during the session. We are assured by the Program Committee of an instructive and interesting scientific session and a program upon which will appear representative men from all sections of this country and Europe.

Start to make your plans to attend now. This means you. Many papers on General Diagnosis and Therapy will be read and discussed during the scientific session.

Bring the wife and family to Chicago, the hub of the United States, with theaters, parks, boulevards and shopping districts second to none.

The location of our headquarters at the Drake Hotel will be found especially convenient. Therefore, make your plans to attend this meeting now. You cannot afford to miss this 14th Annual Session of the Radiological Society at Chicago.

Reservations should be made early. Communicate with Chairman of Hotels and Lodging Committee, T. J. Ronayne, M.D., West Suburban Hospital, Chicago, Illinois, or direct with Drake Hotel, Chicago, Illinois.

PUBLICITY COMMITTEE.

Those Alienists

(Editorial, New York Evening Post.)

The public is gaining a vast distrust of the testimony of alienists in murder trials. It is accustomed to set down this testimony as something that can be purchased by either side. And in a measure this is true. The reason it is true, however, is found in this unusually clear statement made by Judge Frank D. Comerford in a recent trial in Chicago: "Alienists do not testify about the actual defendant but about a hypothetical person. For the State they have a photograph of one person and for the defense another. They are asked about two different people, yet only one man is on trial."

The trouble lies in the "hypothetical question."

The prosecution poses a query to which the only possible answer is the answer it desires;

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the defense frames a question to which the only possible reply is the direct opposite. The physician has to answer the exact questions put to him and is often not allowed to offer his opinion on the actual sanity or insanity of the person before him.

The unreality of this process is obvious. It is bringing two great professions into contempt. Drastic revision should be sought.—Mental Hygiene Bulletin.

Infantile Paralysis Research

Under the direction of the International Committee for the Study of Infantile Paralysis, and due to the gift of Jeremiah Milbank of New York, a three years campaign of research on that disease will be conducted. Chicago, Columbia, Harvard and New York Universities, the University of Brussels and the Lister Institute of London will take part in the work.

Dr. William H. Park of New York University, and Director of Laboratories of the New York City Health Department, is chairman of the Committee; Dr. Joseph A. Blake, consulting surgeon of the Presbyterian, St. Luke's, Roosevelt and Orthopedic Hospitals, is vice-chairman. The committee's headquarters will be care of Dr. Park, foot of East 16th Street, New York City.—Bulletin of the National Tuberculosis Association.

Birth Control

In the December number of "Plain Talk," Have-lock Ellis joins the group of miscreant writers who tell us with straight faces that birth control belongs with the question of impending over-population.

I accuse these writers and their publishers of sordid motive. For purposes of gain they exploit certain unfortunate traits of Homo sapiens which are inseparable from his natural history. They know that man is the only animal capable of developing a philosophy which can make him unhappy. Trouble is his daily joy and tragedy his luxury. The human mind craves disaster very much as the human stomach craves salt in its diet. Sales of books and magazines will follow publication of fears while a happy statement of real conditions among useful people would bring in few dollars.—Robert T. Morris.

Newspaper Medicine

"Dr." Frank McCoy, who is a regular contributor to several newspapers, is not a qualified physician but a "drugless healer." In a recent bulletin he says: "When the diaphragm is contracted the patient exhales the air and poisonous gases and when it is expanded air is drawn into the lungs." This information comes as a surprise to one who knows that inspiration, and not expiration, is the result of contracting the diaphragm.

Some of "Dr" McCoy's public misstatements are: (1) all serums are ridiculous and never save lives; (2) extra feeding in tuberculosis does harm, since fasting and walking are the cures for that disease; (3) tonsils should never be removed, since tonsillitis is readily curable by eliminating from the diet sugar, starches and milk; (4) mastoiditis is curable by fasting; (5) children with glandular enlargement of the neck should never be given milk; and (6) cancer can be cured by fasting, because fasting increases the red blood corpuscles, i. e., the quality of the blood."

Unfortunately there are still many who believe everything they read or that they hear in lectures by self-constituted "authorities." The harm done by the dissemination of such misinformation among the unthinking is incalculable.—Health News.

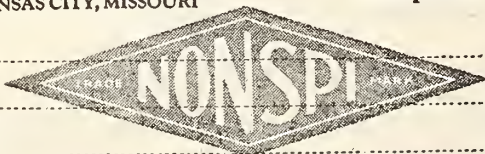
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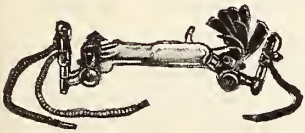
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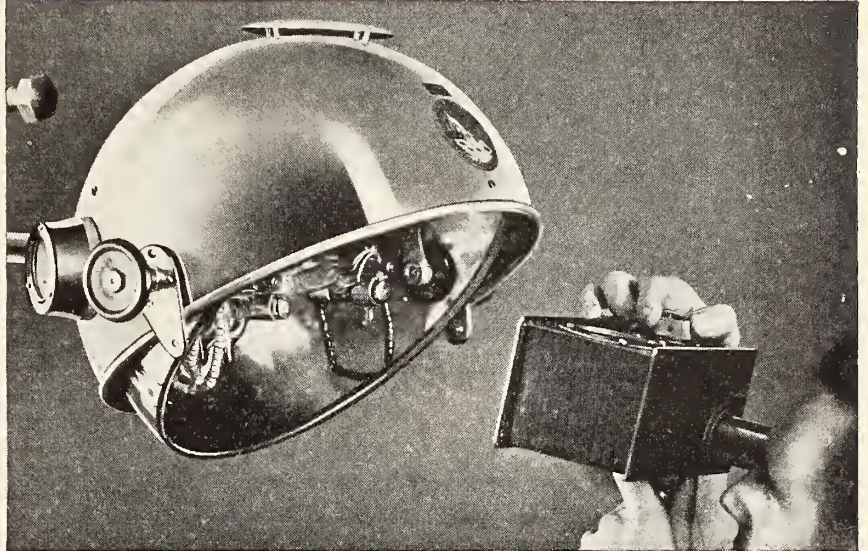
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Chemistry Fellowship

Announcement has been made that the Maltbie Chemical Company of Newark, New Jersey, has contributed a grant for a research fellowship for the coming year to the Department of Chemistry of Princeton University.

The research work to be done under this fellowship will be fundamental in character and will cover certain phases of the chemistry of creosote and creosote compounds.

The establishment of this research fellowship is in line with the policy of the Maltbie Chemical Company to extend its research activities and to contribute to a study of the chemistry of important drugs.—The Maltbie Chemical Company, Newark, New Jersey.

Brain and Mind

"To confuse the provinces of the different subjects is a disservice to those subjects and physiology and psychology should never be confused. Psychology investigates Mind, while physiology investigates Body. A dissection of the brain certainly helps in giving or in adding to a conception of how the body works as a machine, but it cannot give any conception of how the mind works. Similarly the analysis of the way in which the mind works will give little but confusion if directly applied to elucidating the way in which the body works."—V. H. Mottram, Physiology: How Does the Human Body Work?

Forthcoming Report on the Saunders Awards

The offer of two prizes of \$50,000 each by Mr. William Lawrence Saunders for an effective means of preventing and curing cancer expired on February 1, 1928. All of the applications, numbering 3,529 up to May 1, have been placed before the Board of Reference consisting of a group of eminent medical men which the American Society for the Control of Cancer requested to act for it in an advisory capacity. At a recent meeting of this board held at Washington, D. C., the following report was made:

"1. None of the proposals submitted up to February 1, 1928, is worthy of an award either for the prevention or cure of cancer.

"2. While it is to be regretted that no effective preventive or curative agent has been discovered as a result of the offer of these awards, it is the opinion of the board that a great amount of material has been accumulated, the analysis of which, if published, would be of great value to medical science.

"3. It is recommended, therefore, that a report be prepared by the American Society for the Control of Cancer upon the analysis of these applications in order that the information thus acquired may be placed permanently on record, together with such statement of the facts now established in regard to cancer as will serve to explain why the remedies advocated do not, and could not be expected to, serve as an effective preventive or curative agent.

"4. This report should be prepared for publication primarily for the medical profession, but the facts should also be made accessible to the general public."

The foregoing report has been ratified by the Executive Committee of the Society and steps are now being taken to prepare such a report as the Board of Reference has recommended. Mr. Saunders is warmly in favor of producing a volume which shall express in readily understandable language the essential facts and opinion as proposed by the board.—American Society for the Control of Cancer.

Colorado Medicine

Published by the Colorado State Medical Society

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EDITOR:
C. F. KEMPER, M.D., Denver, Colorado.

VOL. 25.

DECEMBER, 1928

Number 12.

EDITORIAL NOTES AND COMMENT

CHRONIC DIARRHEA

Amoebae have long been known to cause chronic diarrhea by producing an ulcerative colitis. While this has usually been considered a disease occurring in tropical and sub-tropical countries, it is now known that many such infestations occur in persons who have never been beyond the borders of temperate states such as Colorado. Therefore, in case of any chronic diarrhea, without obvious cause, a search for entamoeba histolytica is desirable. Where such laboratory study is either unavailable or the findings questionable, the therapeutic test of emetine hydrochloride injections is indicated.

But there is a larger number of cases of chronic diarrhea of non-amoebic origin. These are often caused by chronic ulceration of the colon, which, until recent years, was considered an idiopathic condition. While the disease was recognized as a clinical entity by White as early as 1888, it was not until 1918 that Logan reported 117 cases and gave a clear description of its course and diagnostic signs. However, because of its unknown etiology and resistance to all treatment, little general interest was aroused until Bargaen more recently isolated a diplococcus which he has proved beyond doubt to be the cause of the ulceration.

Chronic Ulcerative Colitis is a definite clinical entity characterized by a progressive lesion beginning at the distal end of the colon, but ultimately involving that entire organ. The accompanying intractable diarrhea and pain lead to invalidism and death if not corrected by appropriate treat-

ment. It is caused by the diplococcus of Bargaen which can frequently be isolated from foci as well as the ulcers of the colon. The specific treatment is removal of foci and vaccine therapy. Of course nonspecific treatment is also indicated.

Chronic diarrheas occurring in this latitude and not due to amoebic infestation or any obvious lesion may be the first symptom of chronic ulcerative colitis. If a proctoscopic examination reveals an ulceration of the distal colon and the x-ray shows a loss of haustra, a search for the diplococcus is imperative. If the diagnosis is thus established, the treatment is highly gratifying in most cases.

Attention is called to the above facts because text-books and systems of Medicine in most instances are still conspicuously silent regarding them.

ENDOCRINOLOGY

Recently several physicians of Colorado have availed themselves of the privilege of a course in the subject of endocrinology. The course was of necessity limited to lectures and lantern slide demonstrations—a limitation much to be deplored in a course in graduate medicine. It was offered by Dr. William Englebach of St. Louis, well-known author and lecturer on the clinical phase of diseases of the endocrine glands.

Basically of course this subject is a recognized division of physiology; but because it includes certain subtleties and mysteries not yet brought within the compass of known physiological processes, it at once incites

the unbounded enthusiasm of some and the stubborn skepticism of others. It is self-evident that what is known of the endocrine glands is as well known as any other facts of human physiology. This knowledge is astonishingly practical in its application. Take for example the pharmacodynamic action of such gland extracts as pituitrin and epinephrin. Or consider the specific indications for the use of the hormones of the thyroid, parathyroids and island of Langerhans in hypofunction of these respective organs. No brighter chapter is known to medicine than the recent history of the achievements in this field. Here the temptation is strong to assume that just ahead of us there are other facts, as yet unknown, just as important and possibly quite as applicable as the known. This assumption may be perfectly true, but it hardly justifies such a fancy to clothe itself in the garb of fact and masquerade as a fund of useful information. It is just this tendency on the part of a few, eager to believe in the new and spectacular regardless of convincing evidence, which has created the impression that the whole of endocrinology is fancy and its exponents are gullible or dishonest. This, of course, is an erroneous impression and is an obstacle to further progress. In all fairness one must admit that much medical advance has been made by accepting unproved theories as working hypotheses. Out of an attempt to substantiate or deny such theories, new knowledge is born and the structure of science is raised a level higher. This is just as applicable to our knowledge of the "incretory system" as it is to any other branch of physiology.

The endocrinologist concerns himself with certain groups of tissue, frequently glandular in structure but always ductless. By observing the changes that occur following the removal of such structures in lower animals, much information has been secured regarding their normal function. Analogous changes have been noted in human beings in whom such tissue has been destroyed by accident, surgery, or pathological lesions. The effects have been so uniform and characteristic in cases of known destruction of

these glands that when a similar syndrome occurs in an otherwise normal individual, it is assumed that there exists a state of hypofunction of the particular gland associated with that particular syndrome. This assumption is confirmed when an extract of that gland can be given and the patient is restored to a state approximating normal. This has been accomplished in diseases due to hypofunction of the thyroid, parathyroids and islands of Langerhans. There is still grave doubt that any of the extracts (hormones?) of the pituitary, suprarenals or gonads can be used as substitutes to make up the hypofunction of these organs. Therefore the most crucial test of hypofunction of these glands, in the absence of demonstrable pathological lesion, is still lacking. Until potent products are produced the effect of the administration of which can be measured with the same precision as can changes in blood and urinary sugar, blood calcium and metabolic rate, both diagnosis and treatment will probably remain in the present unsatisfactory state.

Concerning the course offered by Dr. Engelbach there can be no criticism. He presented a wealth of material. For some it was all more or less new and for all it was somewhat new. It was valuable to learn the extent and limitations of this field as revealed by one of its most enthusiastic students. It has been lightly remarked that all such courses bear a resemblance to the Emersonian quip on a college course. This sage philosopher opined that its chief value was to know just how worthless such a course really is. Only in the sense of emphasizing the importance of knowing the range of the field of endocrinology is this comparison applicable.

THE CHRISTMAS SEAL SALE

The Christmas Seal is the standard of one of the most hopeful and dramatic fights ever made against disease. Twenty years ago only five states were making any active effort to cope with tuberculosis. Today every one of the forty-eight states has a state anti-tuberculosis association. In addi-

tion there are over 1,500 affiliated associations and societies. Financial support comes mainly from the sale of penny Christmas Seals.

The minimum institutional requirement for the case of tuberculosis, according to standards worked out by the National Tuberculosis Association, is one bed for every annual death. This means that the United States needs at least 102,000 beds, while there are only 69,000 beds in about 600 sanatoria and hospitals for tuberculous patients in the United States. In 1904 there were only 100 hospitals and sanatoria with about 10,000 beds.

It has been estimated that there are over 3,500 specially trained tuberculosis nurses and several thousand others who are doing tuberculosis work in the United States.

At present practically all up-to-date communities in the United States have permanent tuberculosis clinics, and in addition there are a large number of traveling, or itinerant clinics.

Work among children has been emphasized in recent tuberculosis programs. There are now scores of permanent preventoria and a great number of health camps in operation during the summer months.

The first open-air school in the United

States was opened in 1908. Today there are over 1,000 such classrooms and many hundreds of special fresh-air classes for anemic and malnourished children.

The story of the conquest of tuberculosis, though not yet complete, is in astonishing part a story of the acquiring and utilization of the sinews of war on the disease provided by Christmas Seals. It is recognized in combating this contagion that there is no public security while large numbers of individuals are sufferers. The death rate though sharply lower in recent years, still is appalling. In buying Christmas Seals the public really is giving generously toward its own happiness, but at the same time each purchaser also is doing a kindly act toward removing a burden of sorrow and death from persons as eager for health and life as he.

The seal sale in Colorado is in charge of the Colorado Tuberculosis Association, but in Denver the mail sale is under the direction of the Denver Tuberculosis Society which is a branch of the state association. The seals are also on sale in many Denver stores.

December is the month of Christmas Seals. Buy them and help prevent tuberculosis.

C. T. B.

REMOVAL OF MAGNETIZABLE METAL FROM THE EYEBALL*

WILLIAM C. BANE, M.D.,
DENVER

During recent years so many valuable contributions on the subject of removal of foreign bodies from the eyeball have been published, that what I have to offer may seem superfluous. However, as there is a lack of uniformity of opinion on the methods of procedure, a brief consideration of the subject may not be amiss at this time.

While some physicians regard the history of the accident of minor importance as an aid to diagnosis, my conviction is that it is highly important, and should be recorded, and analyzed. By that I do not mean the opinion of the patient, but the facts. The

history is important also when the damages are estimated, whether the patient be an employee of a corporation or not. In making the examination, the vision of both eyes should be recorded before any treatment is instituted. If external evidences of injury are sufficient to make it desirable, a drawing or a photograph that will show the changes ought to be placed with the record. Examination should be made by direct and reflected illumination and by a bright beam of red free light after staining with fluorescein. If the wound is fresh and the tissues stained with fluorescein, an examination made under the red free light will reveal the abrasions in the conjunctiva as well as of the cornea.

*Delivered before the fifty-eighth annual meeting of the Colorado State Medical Society, Colorado Springs, September 11, 1928.

An x-ray is essential in all cases where the evidence indicates the possibility that a foreign body has entered the eye, except possibly where the foreign body is clearly in view in the anterior portion of the eyeball.

The following case is instructive, having two foreign bodies:

November 6, 1922, D. C. McK., aged 52 years, a carpenter by trade, was striking a key with a hammer, when something flew into the left eye. Vision of the right eye was 5/20-1; left 5/20. Examination revealed a small foreign body in the left cornea, 2 mm. from the temporal margin just above the horizontal plane. Sideroscope negative. To make sure the above foreign body was all the eyeball contained, an x-ray was made by Drs. Childs and Crosby. They reported a foreign body 1 by $1\frac{1}{2}$ mm., located in the vitreous 10 mm. back of plane of the cornea, 8 mm. below horizontal line and 1 mm. to nasal side of the vertical meridian. Under cocaine, Dr. Wm. M. Bane incised the ball below the external rectus and back of the ciliary body. The tip of the hand magnet was inserted in scleral incision and the foreign body removed. The conjunctival incision was closed with two stitches. Nov. 18, 1922, eye quiet, iris good color. No fundus changes. Jan. 25, 1923, vision left eye with correction, 5/7-1.

Another case can be considered at this time:

September 18, 1916, Charles S., aged 21, an auto mechanic. While hammering a vise, something struck the left eye. Vision at first blurred. Some discoloration and hemorrhagic deposit at temporal side of cornea. Vision right 5/4-1; left 5/4-1. No foreign body seen with the ophthalmoscope. Sideroscope negative. An x-ray by Dr. Crosby revealed a small foreign body 11 mm. back of, 7 mm. below, 5 mm. to temporal side of center of cornea. Sideroscope weakly but definitely positive. Sept. 22, 1916, foreign body removed with hand magnet through a scleral incision made near the location of the foreign body. Slight loss of the vitreous. Wound in the conjunctiva closed with silk suture. The scleral incision remained open for nearly two weeks. Oct. 18, 1916, the vision of the injured eye was 5/5+. Nov. 26, 1917, the vision was 5/5-1. No discomfort. Operation by Dr. Wm. M. Bane, Drs. Crisp and Sedwick being present.

The value of the x-ray is revealed in the following case:

On April 7, 1920, Mr. G. W. McD. was struck in the right eye by what he thought was a piece of wire. The vision of this eye was impaired from the time of the injury, and he had some pain, but living in the country, the eye received no attention until he consulted us three weeks later. The vision of the right eye was for hand only as moving object, with the left eye = 5/7. The pupil was irregularly oval, and fixed. Point of injury was not found, but x-ray was advised. Dr. Stephenson took the picture and located a small foreign body 5 mm. back of the cornea, 5 mm. above the horizontal axis, and 14 mm. external to the sagittal axis. It was thus outside the globe. In this case the x-ray was invaluable. Here also the use of the magnet for diagnosis was safe and was used in locating a piece of magnetizable metal $1\frac{1}{2}$ mm. in diameter in the temporal portion of the upper eyelid, which was removed without diffi-

culty. Whether the globe was pierced by the foreign body in its course we could not determine.

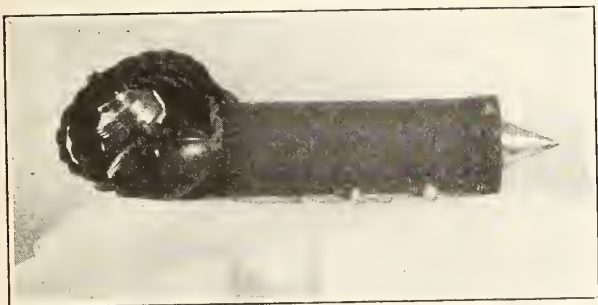
The excuse sometimes made that the patient cannot meet the expense of an x-ray does not justify the omission, because the roentgenologist is always ready to cooperate and to render needed service in deserving cases. The poorer the patient, the more important it is to save a useful eye.

The sideroscope, while not used a great deal, has its place in the examination by indicating whether the foreign body is magnetizable metal.

It was before the x-ray was at our service that I modeled a sideroscope after the description of Asmus, and in a case of injury to an eye that came under my care, demonstrated that the eyeball contained magnetizable metal. This eye was badly disorganized, and had to be enucleated some five weeks after injury. An interesting feature in this case, that has been reported, was the development of sympathetic inflammation in the fellow eye two weeks after the injured eye had been enucleated. Vigorous treatment by mercury, and large doses of sodium salicylate, as advocated by Dr. Harold Gifford, saved the sympathetic eye. This patient was examined some twenty-five years later, and had excellent vision.

The use of the electro-magnet for diagnostic purposes has been advocated by some ophthalmologists with the idea that the production of pain indicates that the eyeball contains magnetizable metal. Such a procedure is not justifiable in this day when definite information, without unnecessary additional injury to the eyeball, is obtainable by the sideroscope and x-ray. Eyes have been seriously damaged or destroyed by the injudicious use of the magnet for diagnostic purposes. I know from personal experience just how destructive the magnet can be if not used cautiously. There are two general types of electro-magnets in use: The giant, and the hand magnet. The public and the medical profession is greatly indebted to Professor Haab for the development and the introduction of the so-called "Giant Magnet," which was presented at the meeting of the Ophthalmological Society at Heidelberg in 1892. Numerous modifications of

the original giant magnet have been made. My personal experience with the giant magnet has been very limited. It requires considerable experience and extreme care on the part of the operator to get the service without the destructive action. In using the giant magnet, it is desirable to control the pull by use of a reostat, gradually bringing the eye and the magnet together, endeavoring to avoid causing pain, yet increasing the strength of the current as required by the individual case. The Lancaster Magnet is possibly the best giant magnet now in use.



It was in 1902 that the Carstarphen Electric Company, then of Denver, made for me a hand magnet that has a lifting power of twenty-five pounds. It has three interchangeable tips: a short conical tip, a straight rod one inch in length and three-sixteenths of an inch in diameter, and a curved rod of the same dimensions. The conical point being quite short furnishes the strongest pull, and is easily inserted in a scleral wound. The curved tip is of service where the foreign body is located a centimeter or more within the vitreous, as the tip can be rotated in searching for the foreign body. This maneuver I have made use of in several cases and withdrew the foreign body with satisfaction. A case in illustration:

July 24, 1916, F. J. W., aged 65, a patient of Dr. J. A. McCaw, seen ten days after something struck his right eye, while hitting a chisel with a hammer. The vision with the right eye-shadows. Left of cornea, 5 mm. below and 4 mm. toward side eye 5/5. X-ray located foreign body 17 mm. back of sagittal axis. Sideroscope positive. Incision in sclera in lower quadrant and back about 10 mm. from the cornea. Curved tip of the magnet inserted through the incision and rotated. Upon removal of magnet, the foreign body $\frac{3}{4}$ by $1\frac{1}{4}$ by $1\frac{3}{4}$ mm. in size, was adherent to the tip of the magnet. At time of examination the iris was inflamed and the lens was cataractous. Final results were not recorded.

The giant magnet has a value over the

smaller magnets where the foreign body has lodged in the scleral coat within the eyeball, and a strong current is needed. The "jerk-ing action" of the magnet, by turning the current on and off as recommended by Drs. Gifford and Patton¹ is applicable in cases where the foreign body is firmly lodged in the denser tissues.

In a large proportion of the cases the foreign bodies are located in the vitreous and are easily drawn through that body to the tip of the magnet. Hence the hand magnet is the most convenient instrument to handle in a very large percentage of cases requiring the use of a magnet. When the chip of the metal is lodged in the anterior segment of the eyeball, the hand magnet is to be preferred owing to the delicate manipulation that is necessary. When the foreign body is located in the posterior segment, that is back of the lens, the choice location for removal is through the sclera back of the ciliary body. A great majority of the chips of metal are irregular in shape, and have ragged edges, hence the avoidance of entanglement of the foreign body in the tissues is most desirable for easy extraction. All magnetized foreign bodies have a north and south, or positive and negative pole. In elongated bits of metal, the north pole of the magnet attracts the south pole of the foreign body, so that in applying the magnet, the chip will be repelled instead of attracted if the poles are alike. Only a few magnets are built that either end can be used in manipulating for attracting magnetizable metal. The old type of Haab magnet had a tip at either end.

If the metal is in the anterior segment of the eyeball, as in the aqueous chamber, iris, or lens, the logical procedure is that of removal through an incision in the cornea. The hand magnet is the one of choice for extraction of metal from the anterior segment, being easily handled, and having ample extracting power. To illustrate:

E. G. M., aged 42, seen May 3, 1916, a boiler maker helper, four days previously while a fellow workman struck a chisel with a hammer, something struck the left eye. Vision, right, 5/6; left, 5/10. There was an angular wound in the lower nasal quadrant of the cornea. In the anterior chamber just back of the corneal margin was a

foreign body 1 by $1\frac{1}{2}$ mm. having a sharp edge. Sideroscope positive. Cornea incised, magnet applied and the foreign body was removed. The wound healed without complication. Iris in normal position. Vision left eye, 5/10-1.

A small hand magnet connected with half a dozen dry cells has considerable pull, and is very easy to manipulate. The direct current of 110 volts is not always available. In this day of automobiles, every physician has access to storage batteries that furnish a reliable current, and of good strength for the six-volt eye magnet. Dr. Walter B. Lancaster² in an excellent article on eye magnets has made it clear that the indirect or alternating current magnets are not at all satisfactory. The alternating current can be used in connection with a liquid rectifier costing approximately \$40.00. A motor generating set costing about \$85.00, consisting of an alternating motor of 110 volts, connected to a direct current dynamo generating 110 volts will operate a large magnet.

When the history, symptoms, and roentgenray furnish the evidence that the injured eye contains a foreign body that is most likely magnetizable metal, early action to remove it should be taken. The earlier the action, the easier, as a rule, it is removed. Experience has demonstrated that there is less likelihood of infection from flying bits of iron or steel than from other foreign bodies that penetrate the eye, presumably due to the heat developed in rapid transit, making the metal sterile. However, it cannot be taken for granted that the particle is sterile, but instead the proper preventative measures should be taken to increase the resistance of the tissues. Dr. James M. Patton³ states, "that before beginning an operation for the extraction of an intra-ocular foreign body, the question of prognosis should be discussed with the patient, as it is much easier at that time to explain the dangers of the operation and possibility of failure than afterward."

The following case illustrates a failure to save an eye:

On October 7, 1918, E. A. D., aged 24, a car repairer, while working under a car and looking upward hammering a cotter bolt, a piece of metal struck the left eye. Oct. 9, 1918, his vision was right 20/20, and left 20/40. Pupil dilated. Puncture wound in lower outer quadrant of the left cornea, close to junction with the sclera. Mucoid

exudate around the wound. Iris drawn slightly toward the wound. Crescent of blood about the wound. Test with sideroscope negative. Unable to see fundus clearly. X-ray by Dr. Childs located foreign body 2 by 2 by 2 mm., 10 mm. below horizontal plane and 20 mm. back of center of cornea. Efforts to remove the foreign body by a hand magnet and by a giant magnet failed. Eye became inflamed, and painful, and continued to get worse not yielding to treatment. On the eleventh day the eye was enucleated.

The prognosis in a large proportion of the cases is not good. Dr. W. M. Sweet⁴ who has had a large experience states that "one-third of all cases in which there has been perforation of the globe by a foreign body are lost; some from primary infection, some from inability to remove the body, and a large number from iridocyclitis. Where extraction has been successful, only a few secure useful vision."

I am well aware that numerous cases have been reported in which particles of steel or iron have been encapsulated and carried for many years without doing damage. This is brought out in a lengthy article on Foreign Bodies within the Posterior Segment of the Eye, by Dr. A. E. Bulson, Jr.⁵ After quoting the opinion of numerous ophthalmologists, he states, in part, that "in a large percentage of cases the patient is as well off if the foreign body is left in the posterior segment of the eye as he would be if it is extracted, particularly if the eye traumatism would be increased by the extraction." Also that, "the prognosis may be better if the foreign body is removed promptly after the injury, provided it can be accomplished without too much trauma; but in most of such cases, the prognosis will not be improved." I cannot help thinking that Dr. Bulson is rather pessimistic in his views, and that if his advice is followed, watchful waiting may be the cause of the loss of an injured eye that might have been saved. It is quite as important that the physician be trained in operating and using the magnet for removal of foreign bodies from the eyeball as for doing an operation for the removal of a cataractous lens.

In operating the usual precautions are taken to avoid infection from without by the strictest antisepsis. To increase the resistance of the tissues against possible infection from the foreign body, it is our cus-

tom in recent years to give a subconjunctival injection of 20 minims of 1-2000 cyanide of mercury immediately following the removal of the foreign body. The cyanide injection is repeated in a few days if symptoms indicate the need of it. Milk and other protein injections are of great value in overcoming infection in these cases. Pure powdered boric acid has a decided beneficial action in clearing up conjunctival infection. Salicylates and mercury internally aid in preventing, or checking the local inflammation. Due attention is given to the mouth, as an absorption from diseased teeth and gums, or diseased tonsils are a menace and may contribute to the loss of an eye that might otherwise have recovered.

In conclusion, I would like to emphasize the following points:

Make an early and thorough examination.

Have the foreign body located by x-ray.

The hand magnet is preferred in most cases. If the giant magnet is used it must be controlled by a reostat.

When the foreign body is in the anterior segment, remove it through a corneal incision; when in the posterior segment, through an incision in the sclera nearest the location of the foreign body.

Operate under strict aseptic surroundings, and give a guarded prognosis as to final results.

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Discussion

F. B. Stephenson, Denver: The localization of foreign bodies by x-ray, foreign bodies in any part of the body, was one of the earlier developments in roentgenology. X-ray was discovered some thirty-three years ago, and within two years they were beginning to figure out the locations of foreign bodies in one place and another by methods such as surveyors use, triangulation, making x-ray plates at different angles and calculating from those angles just how far that foreign body would be from the x-ray plate, and what its relations would be to other structures in the body.

It was early used in localizing foreign bodies in the eye, and from time to time improvements were made in apparatus, so that the human element became less and less, and mechanical accuracy became greater and greater, until today there is a very highly specialized piece of x-ray apparatus that is used for localizing foreign bodies in the eye, in which the human element of error is reduced to the minimum. But we are unable to get entirely away from personal responsibility.

There is more than one element of error, aside from the difficulties in placing the patient just right and being sure that he fixes his gaze exactly as you would like to have him do, adjusting all the apparatus with relation to his pupil, and such. One additional factor of error is that we do not consider in our chart the change in the size of the eye. Now, it turns out that the eye-ball in most people is about twenty-four millimeters in diameter in all directions. The eye is not exactly spherical, but it is nearly enough so for most practical purposes, and most eyes are about that size, but they do vary a little bit, so that if we localize a body as showing on the chart within the sclera, we have to realize that in that particular case the shape of the eye may vary just a little bit, or the size vary just a little bit, and our foreign body may be a little inside or a little outside of the sclera. Due allowance must be made always for the smaller eye of a young child.

Various kinds of foreign bodies can be shown in the eye-ball. Of course, the metallic ones are the ones that show the best, and we feel that we can say that the shadow represents a metallic or non-metallic body. If it is metallic, we cannot say whether it is lead or brass or iron or steel. The usual foreign bodies we meet with are stone, concrete, glass, wood, and certain non-opaque foreign bodies. Now, wood will not show any contrast in an x-ray of the eye unless it should happen to have paint upon it. I have some experimental plates showing iron, steel, brass, lead, concrete, glass and painted wood, placed so as to be x-rayed through the soft tissues of the orbit only, and I have cases on record, which show all of those things except the wood. The glass we commonly meet with is windshield glass or optical glass, and they both contain some very heavy mineral substances, so that they show very nicely.

I will not have time to go into the matter of technique. I have 115 cases on record that were sent in for determination. Fifty-seven were negative, 58 were positive. Out of those 58 positive cases, 8 were not localized for one reason or another, 50 were localized. Out of those 50, 45 gave the date of injury; of those 45, 16, or over one-third, were neglected cases—that is, not rayed until marked symptoms developed. The time ranged from three weeks to many months or years; in one case, 50 years. The frequency with regard to kind of foreign bodies shows that exactly four to one of my cases were magnetic. The result in vision has ranged from nothing to one case that is reported as standard today, after magnetic removal. I am unable to get complete data on ultimate vision, because some of the ophthalmologists have not followed their cases up far enough or have not kept in touch with them.

M. Black, Denver: The doctor made a statement, "Where there is a possibility of the eye containing a foreign body." I would like to emphasize the importance of that statement. It seems to me some of the most disastrous cases that have ever come to my observation have been cases in which neither the patient nor the physician first consulted regarded the injury as of any particular importance. Wherever a patient gives a history of the eye having been struck by a small foreign body, it is extremely important, notwithstanding the fact that the patient may tell you it did not hurt, it does no hurt now, and it does not give him any particular trouble. You ask him, "When did it occur?" "Well, two or three hours ago," or yesterday, whenever it may be; his vision is still undisturbed and he regards the thing lightly, and the possibilities are that the

physician consulted may also regard it lightly. In the course of a few weeks' time the patient's vision begins to fail, and then he comes back again. He is probably then sent to an expert, who has an x-ray made and finds a foreign body on the inside of the eye. It is unfortunate that this case should have been delayed. Certain changes are bound to occur, even in a few weeks' time, which are irremediable. Disintegration of the vitreous is very likely to occur. If, on the other hand, the foreign body can be determined and removed within the first few hours or a day or two after injury, the possibility of continued good vision of that eye is very much enhanced.

E. Jackson, Denver: The points brought up by Dr. Black cannot be overemphasized, but perhaps can be further emphasized by a case of failure to save the eye. I saw a young man, with a foreign body in the vitreous. I saw him within forty-five minutes after the time it went in. It was perfectly visible in the vitreous, could have been gotten at and removed at once, and he was urged to have it done. He would not have it done until he saw his father about it. The next day there was very manifest infection, the eye was badly inflamed, the foreign body was not visible, but he was willing to have it taken out. It was removed, but within three weeks the eye-ball also was removed for panophthalmitis. The infection went on, there was no possibility of saving it.

The probability is that removal at the time of some tissue that came in contact with the foreign body might save the eye. While Dr. Bane has not referred to it, that is one of the advantages of removing with a hand magnet through the scleral opening. You need not be careful to pare off all the tissue that looks normal and leave it in the eye, but it is safer to have the foreign body taken out with what tissue will drag with it.

Another point that might be emphasized, and was brought up in the paper, is the necessity of a careful analysis of the patient's history. The patient's history is not to be set down as ascertained for us. The history the patient gives is a suggestion for cross-examination. When the cross-examination has been conducted, both by questions of the patient and inspection by the surgeon by what the patient says, you get a history that is worth something. I remember one case in which there was a gash across the cornea, and the case came as one of foreign bodies in the eye. The lens had been injured and nothing could be seen behind it. But by carefully inspecting the wound and cross-examination of the patient as to where the foreign body came from and what direction he was looking at the time it struck his eye, it was found that that gash penetrated the cornea, and injured the iris on the side toward where it started from. Where it first struck the eye it caused the penetration and the injury to the lens and iris. Tracing it, we found that it cut less deeply toward the other margin of the cornea, and the logical conclusion was, and the history bore it out entirely, that the foreign body had not gone into the eye; but had wounded it and passed off. That kind of cross-examination of the patient's history gives you the real history, or as much of the real history as is obtainable.

One other point I want to refer to, because Dr. Stephenson did not refer to it, and that is the radiographic localization. The x-ray for localization of foreign bodies is commonly, almost universally, used with a ray that will penetrate bone, and show the shadow of metal through bone. Now, the most important part of the eye-ball can be reached without penetrating bone at all. If the ray is put in advance of the orbital margin

and the film is put next to the nose, you can get the anterior segment of the eye-ball, where the foreign body can very rarely be seen, where almost all small foreign bodies lodge. Very few go back to the retina, a good many never get through the lens, but all can be shown by the x-ray if it is made simply to give a shadow of soft tissue; and that will also show such things as glass and wood that are not seen with the x-ray as it is ordinarily used.

W. C. Finnoff, Denver: The management of foreign bodies in the eye necessitates a great deal of judgment. With non-magnetic bodies, it is frequently better to leave it in the eye than to attempt its removal, but with magnetizable foreign bodies there is only one procedure to follow, and that is the removal. All magnetizable foreign bodies have as their base iron, and if the iron is left in the eye-ball it undergoes degeneration, produces soluble carbonates of iron in the ocular fluids, and in a certain period of time there will be enough of this material dissolved from the foreign body to cause degeneration of the important elements. The ganglion cells of the retina have an affinity for those chemicals and undergo degeneration after absorbing therein. If the foreign body is not removed, the eye certainly will become blind, so that with all magnetizable bodies it is necessary to accurately localize and remove them. With other foreign bodies that is not always the case, the eye will frequently tolerate stone, small pebbles, and so on, without undergoing degeneration.

Dr. Bane (closing): I appreciate the discussion, and the different points brought out. You might judge from what I said regarding the cases reported that all were successful; they were not. I have read to you what Dr. Sweet had to say about the percentage of successes and failures.

"Why Hickman Hangs"

Dr. Miriam Van Waters, the referee of the Juvenile Court of Los Angeles, the city where Edward Hickman committed and did expiate his crime, is striving to turn public attention from the boy's atrocious crime to the boy himself and to the treatment by which a civilized community might have prevented his career of robbery and murder. The article in which she reviews the trial and the history of the boy appeared in the Survey Graphic of October 1 under the title of "Why Hickman Hangs."—Children's Bureau.

Nine Medical Colleges Pass the Century Mark

The following tabulation will be of interest in noting the time of service of centenarian medical schools in this country. This year the University of Pennsylvania School of Medicine begins the one hundred and sixty-third session; Harvard University Medical School begins the one hundred and forty-sixth session; University of Maryland School of Medicine and College of Physicians and Surgeons begins the one hundred and twenty-second session; Columbia University College of Physicians and Surgeons begins the one hundred and twenty-first session; Yale University School of Medicine begins the one hundred and fourth session; Jefferson Medical College begins the one hundred and fourth session; University of Virginia Department of Medicine begins its one hundredth session; the Medical College of the State of South Carolina begins its one hundredth session; and the University of Georgia Medical Department begins its one hundredth session.—Virginia Medical Monthly.

A SUMMARY OF TWO YEAR'S BACTERIOLOGICAL TESTING OF DENVER CITY WATER AND THE POSSIBLE RESPONSIBILITY OF THE CITY WATER FOR INTESTINAL DISEASES IN DENVER

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The University of Colorado School of Medicine and Hospitals secure their water from the city water system of Denver. Since May, 1926, we have conducted examinations of this water as delivered from three taps widely separated in the building, samples of a given date being secured in sterile flasks within the same hour after allowing the water to run about one-half hour each time. The examinations were conducted according to the Standard Methods of Water Analysis of the American Public Health Association for 1925, using 1.5 per cent meat extract agar for the plate counts, 1 per cent lactose broth in Durham or Smith fermentation tubes for the presumptive tests, and Levine's¹ eosin methylene blue agar plates for the detection of *Bact. coli*. Coliform colonies were picked pure, and their identification determined by Gram negative staining, gassy fermentation of lactose and glucose broth, and non-liquefaction of gelatin. *B. aerogenes* was distinguished from *Bact. coli* by the form of its colonies in the eosin methylene blue plates, by the larger amount of gas found in glucose and lactose, and by the Voges-Proskauer and methyl-red tests. *B. aerogenes* was detected only on three rather widely separated occasions and only in plates subcultured from the presumptive tests made with 10 cc. of the water samples, September 8 and October 26, 1926, and May 29, 1928. However, it is now generally regarded as of no sanitary significance, at least when unaccompanied by *Bact. coli* as was always the case here.

We have assumed with most recent authorities that *Bact. coli* is the sole criterion of fecal pollution in drinking water, one whose absence assures the safety of a given supply as regards intestinal disease but

whose presence by no means always involves danger to the drinker.² Practically, the water sanitarian is confronted, and this is particularly true in case of a chemically treated supply such as that of Denver^{3, 4, 5}, with the problem of securing the minimal bacterial content compatible with tolerable quantities of chemicals, and maximum efficiency in plant operation without producing disease on the one hand or objectionable tastes in the water due, for example, to chlorine, on the other.

There is still room for differences in opinion as to the permissible bacterial content, particularly of *Bact. coli*, in water. The problem has been most adequately discussed in the Report of the Advisory Committee on Official Water Standards⁶ where it is recommended that—

"II. As to Bacteriological Quality,

1. Of all the standard (10 cc.) portions examined in accordance with the procedure specified below, not more than 10 per cent shall show the presence of organisms of the *B. coli* group.

2. Occasionally three or more of the five equal (10 cc.) portions constituting a single standard sample may show the presence of *B. coli*. This shall not be allowable if it occurs in more than—

- (a) Five per cent of the standard samples when twenty (20) or more samples have been examined,

- (b) One standard sample when less than twenty (20) samples have been examined."

It is not to be understood, however, that the above standard is actually based upon anything but the common observation that, "the water supplies of many of our large cities are safe in the sense," that, "the large populations using them continuously have, in recent years, suffered only a minimum incidence of typhoid fever and other potentially water-born infections. Whether or not these water supplies have had any part

*The writer wishes to acknowledge the aid of his assistants, Miss Martha Miller, Miss Carey D. Coffman, and Miss Mary Goodson, who conducted the laboratory tests and tabulated the results under direction.

TABLE I
Chronological Summary of Water Examinations from May 12, 1926 to July 25, 1928

Date	Men's Surgical Ward				Room 26			Room 132			Dining Room		
	cc.s tested	Agar Plate Count	Pre-sump-tive	B. coli	Agar Plate Count	Pre-sump-tive	B. coli	Agar Plate Count	Pre-sump-tive	B. coli	Agar Plate Count	Pre-sump-tive	B. coli
5-12-26	10.0	52	—	—	106	—	—	108	—	—			
	1.0		—	—		—	—		—	—			
	0.1		—	—		—	—		—	—			
5-19-26	10.0	26	—	—	20	—	—	10	—	—			
	1.0		—	—		—	—		—	—			
	0.1		—	—		—	—		—	—			
6-9-26	10.0	10	+	—	10	—	—	1	—	—			
	1.0		—	—		—	—		—	—			
	0.1		—	—		—	—		—	—			
6-23-26	10.0	11	—	—	6	+	—	7	+	—			
	1.0		—	—		—	—		—	—			
	0.1		—	—		—	—		—	—			
6-26-26	10.0	8	+	—	14	+	—	11	+	+			
	1.0		—	—		—	—		—	—			
	0.1		—	—		—	—		—	—			
6-29-26	10.0	11	+	+	8	—	—	8	—	—			
	1.0		—	—		—	—		—	—			
	0.1		—	—		—	—		—	—			
7-7-26	10.0	15	+	+	14	+	—	19	+	—			
	1.0		+	+		—	—		—	—			
	0.1		—	—		—	—		—	—			
7-14-26	10.0	2	+	—	29	+	—	14	+	—			
	1.0		—	—		+	—		—	—			
	0.1		—	—		—	—		—	—			
7-21-28	10.0	4	—	—	6	+	+	10	—	—			
	1.0		—	—		+	+		—	—			
	0.1		—	—		—	—		—	—			
7-28-26	10.0	9	—	—	6	—	—	2	—	—			
	1.0		—	—		—	—		—	—			
	0.1		—	—		—	—		—	—			
8-12-26	10.0	45	—	—				42	—	—	59	—	—
8-18-26	10.0	25	—	—				64	—	—	36	—	—
	1.0		—	—					—	—	—	—	—
8-26-26	10.0	14	—	—				13	—	—	20	—	—
	1.0		—	—					—	—	—	—	—
9- 1-26	10.0	18	+	+				31	+	—	28	+	+
	1.0		—	—					—	—	—	—	—
9-8-26	10.0	44	+	—				8	+	—	43	+	+
	1.0		—	—					+	—	+	+	+
9-15-26	10.0	11	—	—				28	+	—	12	+	—
	1.0		—	—					—	—	—	—	—
9-23-26	10.0	6	—	—				15	—	—	10	—	—
	1.0		—	—					—	—	—	—	—
10-6-26	10.0	11	—	—				42	—	—	7	—	—
	1.0		—	—					—	—	—	—	—
10-13-26	10.0	7	—	—				7	—	—	8	—	—
	1.0		—	—					—	—	—	—	—
10-20-26	10.0				200	+	+	210	+	+	274	+	+
	1.0					—	—		—	—	—	—	—
10-26-26	10.0				71	+	—	49	—	—	34	—	—
	1.0					—	—		—	—	—	—	—
11-2-26	10.0				10	—	—	12	—	—	6	—	—
	1.0					—	—		—	—	—	—	—
11-16-26	10.0				7	—	—	11	—	—	8	—	—
	1.0					—	—		—	—	—	—	—
11-24-26	10.0				10	—	—	15	—	—	2	—	—
	1.0					—	—		—	—	—	—	—
12-9-26	10.0				8	—	—	2	—	—	2	—	—
	1.0					—	—		—	—	—	—	—
12-21-26	10.0				2	—	—	1	—	—	3	—	—
	1.0					—	—		—	—	—	—	—
3-14-27	10.0				14	+	—	11	+	—	11	+	+
	1.0					—	—		—	—	—	—	—
3-22-27	10.0				12	—	—	14	—	—	14	—	—
	1.0					—	—		—	—	—	—	—
3-28-27	10.0				6	+	+	10	+	+	10	+	+
	1.0					—	—		—	—	+	+	+
4-19-27	10.0				26	—	—	14	—	—	9	—	—
	1.0					—	—		—	—	—	—	—

TABLE I—(Continued)

Date	Men's Surgical Ward				Room 26			Room 132			Dining Room		
	cc.s tested	Agar Plate Count	Pre-sump-tive	B. coli	Agar Plate Count	Pre-sump-tive	B. coli	Agar Plate Count	Pre-sump-tive	B. coli	Agar Plate Count	Pre-sump-tive	B. coli
4-26-27	10.0				5	—	—	3	—	—	11	—	—
	1.0					—	—		—	—		—	—
5-3-27	10.0				14	—	—	8	—	—	7	—	—
	1.0					—	—		—	—		—	—
5-12-27	10.0				12	+	—	15	—	—	21	+	+
	1.0					—	—		+	+		—	—
5-18-27	10.0				29	—	—	38	—	—	19	+	+
	1.0					—	—		—	—		—	—
5-24-27	10.0				42	+	—	37	+	—	33	+	—
	1.0					—	—		—	—		—	—
6-1-27	10.0				43	—	—	11	—	—	40	—	—
1-15-28	10.0				5	—	—	2	—	—	2	—	—
	1.0					—	—		—	—		—	—
2-22-28	10.0				1	+	—	2	+	—	4	—	—
	1.0					—	—		—	—		—	—
3-7-28	10.0				7	—	—	1	—	—	1	—	—
	1.0					—	—		—	—		—	—
3-21-28	10.0				7	—	—	8	—	—	11	—	—
	1.0					—	—		—	—		—	—
3-28-28	10.0				10	—	—	7	—	—	4	—	—
	1.0					—	—		—	—		—	—
4-3-28	10.0				17	+	+	18	—	—	10	—	—
	1.0					—	—		—	—		—	—
4-10-28	10.0				9	—	—	10	—	—	1	—	—
	1.0					—	—		—	—		—	—
4-19-28	10.0				21	+	+	20	+	+	12	+	+
	1.0					—	—		—	—		—	—
4-23-28	10.0				19	+	+	7	+	+	15	—	—
	1.0					—	—		—	—		—	—
4-30-28	10.0				40	+	+	5	—	—	16	+	+
	1.0					—	—		—	—		—	—
5-11-28	10.0				9	—	—	7	+	+	10	+	+
	1.0					—	—		+	+		—	—
5-16-28	10.0				22	—	—	16	+	—	13	+	+
	1.0					—	—		+	—		+	—
5-23-28	10.0				4	—	—	11	—	—	15	+	—
	1.0					—	—		—	—		—	—
5-29-28	10.0				3	+	+	6	+	—	14	—	—
	1.0					—	—		—	—		—	—
6- 7-28	10.0				7	+	+	12	+	+	7	+	+
	1.0					—	—		—	—		—	—
6-14-28	10.0				16	+	+	18	+	+	7	—	—
	1.0					—	—		—	—		—	—
6-21-28	10.0				8	+	—	9	+	+	13	+	—
	1.0					—	—		—	—		—	—
6-28-28	10.0				7	—	—	12	—	—	14	+	—
	1.0					—	—		—	—		—	—
7- 5-28	10.0				13	+	+	19	—	—	6	—	—
	1.0					—	—		—	—		+	—
7-12-28	10.0				28	+	+	35	+	+	12	+	—
	1.0					—	—		+	+		+	+
7-25-28	10.0				11	+	—	19	+	+	15	+	+
	1.0					+	—		+	—		—	—

whatsoever in the conveyance of such infections referred to is a question that cannot be answered with full certainty; but the total incidence of the diseases has been so low that even though the water supplies be charged with responsibility for the maximum share which may reasonably be suggested the risk of infection through them is still very small compared to the ordinary hazards of every day life."

The problem therefore comes to a clear cut issue in those places, like Denver, where

evidence of fecal pollution can be detected in the water occasionally but only in the larger quantities tested. We shall first present our own observations of the frequent occurrence of Baet. coli in Denver water and then briefly discuss the possibility of attributing intestinal diseases in Denver to it.

Our tests were made usually at intervals of one week, but the record is neither regular in this regard nor absolutely continuous. Considerations of convenience also caused us twice to change the sources of samples with-

TABLE II
Summary of Bacteriological Examination of Denver City Water in the University of Colorado School of Medicine and Hospitals May 12, 1926, to July 25, 1928

	Men's Surgical Ward 5-12-26—10-13-26	Room 26 5-12-26—7-25-28	Room 132 5-12-26—7-25-28	Dining Room 8-12-26—7-25-28
Dates-inclusive	5-12-26—10-13-26	5-12-26—7-25-28	5-12-26—7-25-28	8-12-26—7-25-28
No. of Samples Tested.....	19	48	57	47
Av. agar plate counts per cc.....	17	21	18	20
Range of counts per cc.....	2-52	1-200	1-210	1-274
Positive presumptive tests in 10 cc.	7 (37%)°	24 (50%)	21 (45%)	23 (40%)
Samples yielding B. coli in 10 cc.	3 (15%)	13 (27%)	14 (30%)	12 (21%)
Positive presumptive tests in 1 cc.....	1 (5%)	3 (6%)	5 (11%)	7 (12%)
Samples yielding B. coli in Positive presumptive tests 1 cc.	1 (5%)	1 (2%)	3 (6%)	3 (5%)
in 0.1 cc.....	0*	0*	-----	-----
Samples yielding B. coli in 0.1 cc.	0*	0*	-----	-----

° Percentages expressed to the nearest integer.
* Only 11 tests made.

in the building, so that while three samples were always taken, they came altogether from four sources.

The primary data are shown in Table I, inspection of which fails to show any special seasonal tendency in the occurrence of Bact. coli and indicates its really sporadic appearance.

The primary data are summarized in Table II, in which it should be emphasized that the figures for the different sources are not strictly comparable since different periods were involved in part, as will be seen by referring back to Table I.

Agar Plate Counts of Denver Water

Table II shows that the agar plate counts averaged from 17 to 21 per cc. which is well within the limits usually considered appropriate for potable water, although on one occasion counts over 100, and on another, over 200 per cc. developed (see Table I). In both instances high counts were obtained with all three of the samples taken on the same date, Bact. coli being absent in the first, present in the second. Two sets of tests with high counts in one sample out of the three were excluded from our summary as probably involving some error in technic; Bact. coli was not detected in either of these series of tests. On the whole, the total aerobic bacterial content of the water must be regarded as pleasingly low and we make no adverse criticism of it.

Presumptive Tests

A few years ago it was not uncommon for

water sanitarians to condemn water showing gassy fermentation of lactose broth on primary culture in fermentation tubes upon the presumption that the gas was generally due to Bact. coli or other fecal bacteria. We now know how unjust this false interpretation was to many waters of excellent sanitary quality, since obligate anaerobes, a few non-coli-form aerobes, and certain synergic combinations of bacteria incapable alone of forming gas from lactose, and none of sanitary significance in detecting fecal pollution, may give rise to positive presumptive tests. It is unnecessary here to discuss the significance of presumptive tests in water examinations, as I have reviewed the problem in detail elsewhere² But it is always interesting to observe the proportion of these tests to total examinations and to examinations showing Bact. coli in any series of water examinations. In treated waters even of good quality the total proportion of positive presumptive tests is likely to run high; Table II shows that they were secured in 37 to 50 per cent of our tests with 10 cc., and in 5 to 12 per cent with 1 cc., but none was secured in the few tests made with 0.1 cc. of water.

Isolation of Bacterium Coli

Table II shows that three (15 per cent) of the 10 cc. samples and one (5 per cent) out of the 19 samples from the men's surgical ward during the early period May 12, 1926, to October 13, 1926, yielded Bact. coli, while from 21 to 30 per cent of the larger number of 10 cc. samples and 2 to 6 per cent of the

1 cc. samples taken from three other sources over a longer period yielded this tell-tale organism.

Discussion

It is obvious from these data that Denver water does not meet the standard of bacteriological purity suggested in the Report of the Advisory Committee on Official Water Standards.

These facts suggested that although there has been no definite epidemic of intestinal disease in Denver during this period, it might still be necessary to attribute some of the morbidity and mortality due to typhoid and paratyphoid fever in Denver to infection borne by the city water.

For this city has not yet reduced its death rate from these diseases to the low level attained by many other cities of its class⁷. The Fifteenth Annual Survey of Typhoid Fever in Large Cities of the United States⁸ showed that among seventy-eight cities of over 100,000 population for which adequate data were available in 1926, Denver's typhoid death rate of 3.5 per 100,000 though immeasurably better than it was a few years ago,^{3, 9} placed this city fifty-first in the list; there were only twenty-seven cities in the list with higher typhoid death rates. In 1927, Denver's typhoid fever death rate was 2.8 per 100,000, but it came fifty-sixth in a list of eighty-one cities, leaving only twenty-five with a worse record.¹⁰ In 1927 there were forty-three cities in the United States with populations of 100,000 or more, and typhoid fever death rates of 1.9 or better per 100,000 inhabitants.

It is commonly held, and with good reason, that most of the typhoid and paratyphoid fever that occurs in Denver is really contracted from sources outside the city. The presence of a large and transient tourist population, particularly in the summer, the ready accessibility of the mountains with their clear and sparkling but generally polluted streams from which campers and picnickers commonly drink, and the very large number of people from Denver who constantly use the mountains for recreational purposes, all combine to maintain an intestinal disease inci-

dence higher than that of the majority of other cities of the same class in the United States. But the presence of even a small amount of pollution in the city water confronts us with the suspicion that perhaps we should not rely exclusively upon the theory of extraneous infection to explain our typhoid fever.

Considering the lack of facilities at that time for purification of the water supply and the fact that every improvement in those facilities has been accompanied by a decrease in the morbidity and mortality rates of intestinal diseases,^{3, 9, 11} we may reasonably suppose that most of these diseases were formerly transmitted by city water.

But since the incidence of intestinal disease in Denver is still higher than that of many other cities of its size in the United States and, as we have shown, the sanitary quality of the city water supply is still open to adverse criticism, it would be a difficult matter to exclude the admittedly slight and occasional pollution of the city water from responsibility for intestinal disease in Denver.

It should be someone's task to attack this problem by intensive epidemiologic methods.

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CYSTS OF THE APPENDIX

With Report of Case

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DENVER

Cysts of the appendix are of quite rare occurrence. In a search of the literature only a few cases are reported. Many standard texts make no mention of the condition. Various terms have been used to describe the condition as retention cyst, hydrops, mucocele, colloid cyst, pseudomucous cyst of the appendix and cystic disease of the appendix. Cystic disease of the appendix was first described by Virchow in 1863.¹ In 1867, Virchow described four cases as examples of colloid carcinoma. The neoplastic nature of these are in doubt. Weir,² in 1880, drained one. Crouse³ in 1910, tabulated a total of 89 cases, and Dodge,⁴ in 1916, tabulated 142 cases.

Frequency: The combined autopsy records of Ribbert, Bryant, Steiner, Boody, Kelley and Hurdon, Stengel, Heinach and Castle, a total of 13,158 autopsies, revealed 28 cystic appendices, or 0.2 per cent. Corning in 935 appendices found five cysts (0.68 per cent). Dodge collected 142 cases up to 1916, including one of his own, of which 55 were from autopsies, 66 from operations, and in 21 the information was not recorded. Sex seems to play no role as the condition was found equally in both sexes. Cystic appendix may occur at any age, though most cases are found in middle life.

Etiology: Various factors enter into the production of a cyst of the appendix. There must coexist an obstruction of the lumen (either complete or partial) and an excessive secretion of mucous from the appendix epithelium. In addition, the contents of the appendix must be sterile or become so. Typhoid and tuberculous lesions have been ascribed as cause in some cases. Malignant obstruction has also been described. Garrow and Keenan⁵ report a case in which the occluding nodule was carcinoma invading all the coats of the appendix. Another factor frequently attributed as etiologic in cystic appendix is angulation and compression of the lumen by external adhesions. That this is not the only factor involved is

evidenced by the many cases encountered in which kinks, acute angulations and complete obliterations of the lumen are present without cystic dilatation. Cases of appendiceal cysts which are of possible endometrial origin have been reported by Outerbridge.⁶

The anatomical picture of primary cystic disease of appendix is very varied. The obliteration results from the destruction of the mucous membrane by gangrene or is caused by destructive ulceration and subsequent cicatrization. The obliteration is only partial, portions of the appendix escaping. The proximal portion is most often affected. The distal part is then left lined with mucous membrane, but isolated from the lumen of the caecum. Several segments of the lumen may be left as cavities separated from each other by areas of cicatricial tissue. The mucous membrane may continue to secrete, and, if infected, produces an empyema of the appendix, as shown by Wilkie.⁷ If no infection has occurred or a mild infection overcome, a cyst results. If the appendix of a rabbit is ligated at its proximal portion, leaving the meso-appendix with blood supply intact, one of two conditions result. If a small amount of fecal matter is left in the appendix, pus results. If considerable fecal matter is left in, the animal dies in twenty-four hours from a perforated, gangrenous appendix. The same sequelae occur in the human when the appendix has become obstructed and all variations in severity are possible and occur. On the other hand, if the appendix was empty when its proximal portion was tied, a mucocele develops. A small portion of the proximal end of the appendix may suffer from destruction of the mucous membrane. When this is replaced by connective tissue completely obstructing the lumen, there still remains a large area of mucous membrane from which a sufficient amount of mucus and serum may be secreted to produce a cyst. The secretion, at first, is the normal mucous secretion of the appendical mucosa



Figure I: Front view of appendix. A, line of demarkation of intra-caecal portion. B, base of appendix showing imperforate membrane.

and later, because of pressure atrophy of mucosa, becomes serous. The thin membrane which obstructed the canal at the valve becomes gradually distended by the pressure of fluid in the appendix, so that the cyst becomes partly intracaecal, as in the case here reported.

Pathology: Cysts of the appendix vary in size from the very small mucocoele to cysts the size of a man's head as found by Neuman. Kelly found one at autopsy the size and shape of a very large banana. The shape of the cyst is determined by the location of the obstruction. In the series collected by Dodge, the entire appendix was involved in 23 cases, and a portion of the appendix in 38 cases. In 81 cases the site was not recorded. The contents have been variously described as mucoid, colloid, gelatinous, or pseudomyxomatous. A peculiarity noted frequently is the lack of adhesions, the cyst being free and movable. The histological picture is that of a mild, chronic inflammation with pressure atrophy. It varies, first, according to the length of time the process has been going on; second, the presence of complete or partial occlusion of the lumen; and, third, the nature of the

contents. In some cases the epithelial lining is swollen, due to increased mucin in the cell body. In the greatly dilated appendices, the mucosa becomes thinned out or disappears. The lymphoid tissue diminishes or disappears. The muscularis in smaller cysts may be hypertrophied. In larger cysts, the muscularis disappears. The large cysts, then, may consist only of a thin layer of connective tissue.

Symptoms and Diagnosis: Most cases have given history of pain or discomfort referable to right iliac region. A few have given typical histories of chronic appendicitis. In some cases, no symptoms existed. Before operation the diagnosis is rarely made. It has been confused with cystic ovary, acute and chronic appendicitis or appendiceal abscess. In Phemister's⁸ case, the diagnosis had been made of ovarian cyst. Hartman & Kindley⁹ mistook the condition for floating kidney and a fixation operation had been performed previously. The true nature of the condition was discovered at a second operation. In one case the diagnosis was made of pedunculated fibroid.

Prognosis: The prognosis in the uncomplicated case, with removal of the cyst, is good. The cyst may rupture if unoperated, with the extravasation of the contents into the peritoneal cavity with the formation of pseudomyxoma peritonei (Lubarsch;¹⁰ Roberg;¹¹ Frankel¹²). Whether cysts of the appendix are responsible for the condition of pseudomyxoma peritonei, similar to that

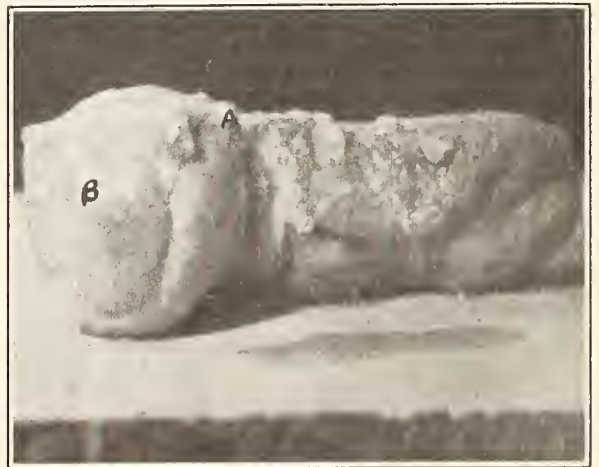


Figure II: Same as Figure I showing base. AB shows portion which had invaginated itself into caecum.

which occasionally complicates pseudomucinous cystadenomas of the ovary is as yet open to question. On the possibility of such an association the removal of these cysts without rupture is important. Other complications as intestinal obstruction, ileus (Wegener)¹³ and volvulus (Dubs)¹⁴ have been reported.

Case Report

Mrs. C. H. Age 26. Married six years. Two children, age 7 years and 17 months. No miscarriages. Complaints of pain right side and lower abdomen. Dragging sensation so severe that she was unable to do any housework. Pain of cramping type during menses. Pain right side began about nine years ago, at which time it was not constant. One attack of sharp pain at that time which put her in bed for three days. No physician was called. Since birth of last child pain has been constant and increasing in severity, accompanied by a sense of oppression in the epigastrium. Her menstrual pain began after birth of last child and has gradually increased in severity.

Past and family history not relevant. Menses began at 14—twenty-eight days' type—three to four days and normal until last confinement.

Examination: Head and chest were negative.

Abdomen: Tenderness marked in right iliac fossa. Deep palpation not satisfactory because of rigidity of the right rectus. The entire lower abdomen was somewhat tender.

Vaginal: Relaxed perineum. Cervix normal but pointing anteriorly. Body of uterus retroflexed and fixed. Blood and urinary findings negative.

Diagnosis: Chronic Appendicitis—Fixed Retroflexion—Relaxed Perineum.

Operation: Perineorrhaphy—Uterus was raised to normal position and a Webster-Baldy operation performed. Caecum was mobilized and a cystic tumor brought into view. The cyst involved the entire vermiform process and was tense and transparent. The proximal portion had invaginated itself into the caecum and could be felt as a hard, smooth projection through the caecal wall. The cyst was freely movable and there were no adhesions. The visceral peritoneum was incised close to the caecum and the entire tumor shelled out without entering the lumen of the caecum. A fragile transparent membrane remained over this area of the caecum. Lembert sutures were applied to caecum. Abdomen was closed without drainage. Convalescence was uneventful.

Pathological Report by Dr. Hillkowitz

Specimen consists of a sausage-shaped mass measuring 7.5 cm. in length and averaging 3 cm. in diameter. The distal end bulges out somewhat. On opening the organ the walls are found to be from 1 to 2 mm. in thickness. The lumen is filled with a clear, colorless, mucoid substance. External surface shows some tortuous and distended veins. In general the inner surface is smooth. Sections reveal coarse bundles of connective tissue fibers running in longitudinal and oblique directions. The inner surface is lined by a single layer of columnar epithelium, but there are no glands of a Lieberkuhn or lymphoid tissue. There is no muscular layer.

Summary

1. Cysts of the appendix are only occasionally encountered.

2. Cyst of the appendix is a form of obliterative appendicitis in which the remaining portions of secreting mucosa are non-infective.

3. The histologic picture varies with the different stages of pressure atrophy.

4. There is a possibility of an association between cystic disease of the appendix and pseudomyxoma peritonei.

5. This possible connection makes operative removal without rupture imperative.

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Medical Profession of Western Hemisphere to Congress in Havana

The next congress of the Pan-American Medical Association will be held in Havana, Cuba, from Dec. 29, 1928, to Jan. 3, 1929. The program which is being arranged by the President, Dr. Fred H. Albee of New York City, will be a strong one, and will include four orations, upon the subjects of surgery, medicine, pediatrics, and tropical medicine.

Dr. William J. Mayo will give the Oration on Surgery, and Dr. Lewellys Barker of Johns Hopkins University the Oration on Medicine. Papers will be read in both Spanish and English.

This congress will be representative of the medical profession of the entire Western Hemisphere. Chapters of the Association have been and are being organized in various centers of North America and Central America, as well as in the Antilles, all of which will be represented at the Congress.

One of the recent accomplishments of the Pan-American Medical Association is the establishment of the Pan-American Hospital in New York City for the benefit of the Latin-speaking people. A large attendance is solicited.

FRED H. ALBEE, President.

Fifty-eighth Annual Session of The Colorado State Medical Society

Held at Colorado Springs, Colorado, September 11, 12, 13, 1928.

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MINUTES IN DETAIL

First Meeting of the House of Delegates, September 10, 1928

President Sedwick: The House will kindly come to order. The first order of business is the roll call.

Secretary Stephenson: As chairman of the Credentials Committee, I will state in the beginning that Arapahoe County has failed to report any delegate to the meeting and is not represented. The San Luis Valley Society is in a disorganized state and has not made an annual report.

The Secretary thereupon called the roll.

President Sedwick: There is a quorum present, so we will proceed with business; and the next order will be the reading of the minutes of the last meeting.

J. R. Espey: I move that the reading of the minutes be dispensed with and that they be accepted as published in Colorado Medicine.

The motion having been duly seconded, was put to a vote and carried.

The President then read the following report:

REPORT OF THE PRESIDENT

The President's report will be short.

The year has run smoothly.

There being no legislature in session, there is nothing to say regarding legislation.

A plea was made to enroll as members of the society, as many as possible of the 800 or 900 licensed physicians in the state who are still out of the fold, i. e., of course, those whom we

would care to have. To have them in would be a great benefit to themselves as well as to the society.

The American Medical Association keeps a biographic department, and that department knows all about all of us from birth to grave, and it will gladly furnish all information about any doubtful applicant. During this year we lost five members, so let us make an effort to enroll new, desirable members from among those who have not joined us. An appeal was made last year to elect a full time executive secretary. The time has come, I am sure, for very thoughtful, painstaking consideration of this matter.

The Secretary and chairman of the committee on "Full-time Secretary" will give you detailed reports of what has been done this year, so I'll not attempt to steal their thunder, but I do once more earnestly appeal to this body to give thoughtful consideration to this subject.

The A. M. A. is expected to provide funds for the traveling expense of its president when visiting constituent societies. Should the State Society do the same? I feel it should.

It has been a great pleasure to work with the officers and the various committees, and, but for their untiring work, the last meeting would not have been what it probably was, the most successful meeting ever held at Glenwood Springs. It was a success in every way, a splendid scientific program, no dragging, good attendance, and our visitors were outstanding men, who gave learned papers, thereby adding greatly to the success of the meeting.

W. A. SEDWICK,
President.

President Sedwick: The next order of business will be the report of the Committee on Credentials.

Secretary Stephenson: The Committee on Credentials begs leave to report as follows:

REPORT OF COMMITTEE ON CREDENTIALS

Attached is a list of the accredited delegates and alternates to the 1928 annual session, as previously published in Colorado Medicine.

Number of members of State Society, December 31, 1927:

Society—	No. of Members Dec. 31, 1927	Delegates
Arapahoe	7	1
Boulder	41	2
Chaffee	6	1
Delta	22	1
El Paso	107	5
Denver	553	23
Fremont	19	1
Garfield	14	1
Huerfano	11	1
Kit Carson	11	1
Lake	6	1
Larimer	31	2
Las Animas	20	1
Mesa	21	1
Montrose	7	1
Morgan	12	1
Northeast Colorado.....	26	1
Northwestern Colorado..	12	1
Otero	25	1
Prowers	18	1
Pueblo	63	3
San Juan	18	1
Weld	35	2
	1085	54

San Luis Valley Medical Society has failed to make its yearly report, is in a state of disorganization, and is not entitled to representation at this session.

Your committee is prepared to act upon any question of credentials that may be presented at this session.

The official roll call, a copy of which is attached, represents a part of this report.*

H. W. SNYDER,
F. R. SPENCER,
F. B. STEPHENSON, Chairman.

Upon motion and second, the report was adopted.

The President then announced the appointment of temporary committees, viz:

Committee on Reports of Officers: Lorenz W. Frank, John R. Espey, J. B. Crouch.

Committee on Reports of Committees: C. F. Kemper, W. K. Reed, F. M. Heller.

Committee on Miscellaneous Business: A. C. Holland, H. C. Graves, M. J. Krohn.

Committee on Appropriations: W. C. Finnoff, N. A. Madler, H. A. Smith.

Nominations for the nominating committee were then called for.

The following members were thereupon placed in nomination: Geo. H. Curfman, Chaffee County; W. H. Halley, Denver County; H. T. Low, Pueblo County; A. C. Holland, El Paso County; P. J. McHugh, Larimer County; W. S. Chapman, Huerfano County; P. J. Connor, Denver County; C. E. Sidwell, Boulder County.

President Sedwick: Any other nominations?

G. A. Moleen: I move the nominations be closed.

The motion was duly seconded, voted upon and carried.

G. A. Moleen, J. M. Shields and L. W. Bortree were appointed tellers.

H. W. Snyder: According to the constitution, if a person is an officer of the State Society, he is ineligible for the House of Delegates.

It was then pointed out that two members who had been seated by the Credentials Committee were Councillors of the Society, although elected delegates by their respective constituent societies. After prolonged discussion over the interpretation of Article VIII, Sec. 3, of the constitution, a ruling of the Chair that the members in question were not legally delegates was finally sustained by the House on appeal, and by motion duly seconded and carried the report of the Credentials Committee was reconsidered and ordered amended by striking off the names of John R. Espey, A. W. Robbins and W. B. Hardesty.

President Sedwick: Will the tellers kindly report?

Dr. Moleen: There were 43 votes cast: Dr. Curfman received 29; Dr. Halley, 26; Dr. Chapman, 27; Dr. Low, 27; Dr. Holland, 27; Dr. McHugh, 17; Dr. Connor, 15; Dr. Sidwell, 19. The order of election is Curfman, Halley, Chapman, Low and Holland.

Secretary Stephenson: The members of the Nominating Committee then are: G. H. Curfman, Chaffee County, Chairman; W. H. Halley, Denver; H. T. Low, Pueblo County; A. C. Holland, El Paso County, and W. S. Chapman, Huerfano County.

The report of the Secretary was thereupon read, and is as follows:

*Amended by striking off the names of W. B. Hardesty, J. R. Espey and A. W. Robbins. See below, this column.

REPORT OF THE SECRETARY

Your Secretary has nothing of importance to report outside of the usual routine activities for the year. Several questions for your decision will be brought to your attention under the order of New Business. One of these has to do with the national "Committee on the Cost of Medical Care" which has outlined a five-year program for making a comprehensive survey in the United States upon every phase of the important problem of the cost of being sick. I strongly recommend that a committee of good men of seasoned judgment be appointed to co-operate in this state with a representative of the Committee when he shall arrive to study our State. Whether this Society may wish to contribute funds in accordance with the invitation of the Committee rests with the House of Delegates to determine.

The printing of the revised Constitution and By-Laws, 1,200 copies, has been carried out according to the directions of the House of Delegates.

Following is a statistical statement of membership and finances as from September 1, 1927, to September 1, 1928:

RECEIPTS

1926 Dues	\$ 1.00
1927 Dues	85.00
1928 Dues	5,400.00
Colorado Medicine	4,240.05

Total, remitted to Treasurer	\$9,726.05
Divided, General Fund	\$8,628.65
Special Fund	1,097.40

EXPENDITURES

Vouchers issued against general fund	\$8,641.40
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Balance receipts over expenditures	\$1,084.65
Gain in Special Fund	\$1,097.40
Loss to General Fund	12.75

Present Status of Special Funds

Fund for education of the public	\$7,152.12
Library fund	274.94

Accounts Due the Society

Federal Reserve Bank	\$ 5.00
Otero County Medical Society	95.00

Inventory

Increased by second-hand desk	\$ 12.50
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MEMBERSHIP RECORD**Reinstatements and New Memberships for Old Year**

Society—	Members	1927 Dues
San Luis	2	\$10.00
Huerfano	1	5.00
Las Animas	2	10.00
El Paso	2	10.00
Boulder	2	10.00
Larimer	1	5.00
Mesa	1	5.00
Denver	5	25.00
Delta	1	5.00
	17	\$85.00

Paid Membership for 1928

Arapahoe	4	Mesa	20
Boulder	41	Montrose	8
Chaffee	7	Morgan	8
Delta	22	NE. Colo	22
Denver	555	NW. Colo	10
El Paso	106	Otero	24
Fremont	18	Prowers	18
Garfield	12	Pueblo	71

Huefano	10	San Juan	21
Kit Carson	7	San Luis Valley	8
Lake	5	Weld	37
Larimer	30		
Las Animas	16		1,080
Total 1928 members paid, 1080, at \$5			\$5,400.00
Active membership last report (1927)			1075
Trans. in, other states			0
Reinstatements			26
New members			51
			1152

Died since without renewal	7	
Dropped, non-payment, resigned	62	
Trans. out (dues paid) (1927)	3	72

Paid memberships		1080
Died (dues paid, 1928)	10	10
Net existing members		1070
Active last report		1075

Loss	5
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Respectfully submitted,
F. B. STEPHENSON,
Secretary.

The report was referred to the Committee on Reports of Officers.

The report of the Treasurer was then read, and upon motion and second, was referred to the auditing committee. The report is as follows:

REPORT OF THE TREASURER**RECEIPTS**

Balance on hand Sept. 3, 1927	\$10,853.50
Rec'd from Secretary	9,726.05
Space Rentals	70.00
Interest	350.77

Total Receipts	\$21,000.32
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DISBURSEMENTS**Secretary's Office**

Secretary's Salary	\$ 199.99
Secretary's Clerk Salary	500.00
Incidentals	205.92

Total	\$ 905.91
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Colorado Medicine

Editor's Salary	300.00
Editor's Commission	\$39.23
Clerical Salaries	600.00
Printing and Mailing	4,911.64
Incidentals	123.59

Total	\$ 6,774.46
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Annual Meeting

Reporting	250.25
Guests	231.16

Total	\$ 481.41
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Library

Library Budget	150.00
Books bought from Library Fund	74.15

Total	\$ 224.15
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Treasurer's Office	27.00
Committee on Mental Hygiene	4847

Total Disbursements	\$ 8,461.40
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Balance on Hand	\$12,538.92
Balance made up as follows:	
Bonds	\$ 4,500.00

Savings Account	7,584.65	
Checking Account	454.27	
Total	\$12,538.92	
DISTRIBUTION OF FUNDS		
General Fund		
Balance on hand Sept.		
2, 1927	\$ 4,449.69	
Space Rentals	70.00	
Interest	350.77	
Dues, 192660	
Dues, 1927	68.00	
Dues, 1928	4,320.00	
Receipts Colorado Medi-		
cine	4,240.05	
Total Receipts	\$13,499.11	
Total Disbursements ..	8,387.25	
Balance on Hand		\$ 5,111.86
Special Fund		
Balance forward Sept.		
2, 1927	\$ 6,054.72	
Dues, 192640	
Dues, 1927	17.00	
Dues, 1928	1,080.00	
Total		\$ 7,152.12
Disbursements, none		
Library Fund		
Balance on hand Sept.		
2, 1927	\$ 349.09	
Books purchased from		
fund	74.15	
Balance on hand		\$ 274.94
Total Assets Sept. 2, 1928	\$12,538.92	
Balance forward Sept. 2, 1927	10,853.50	
Increase		\$ 1,685.42
General Fund Gain	\$ 662.17	
Special Fund Gain	1,097.40	
Library Fund Loss	74.15	
Net Gain		\$ 1,685.42
Consideration of individual items for past		
year indicated the following:		
Colorado Medicine had a total dis-		
bursement of	\$ 6,774.46	
Total receipts of	6,400.05	
Deficit for year for Colorado Medi-		
cine		\$ 374.41

The Secretary's office shows an expenditure of \$205.92 for incidentals, for which \$150.00 had been allowed in the budget. There was, however, charged to this office the sum of \$83.22 for printing the Constitution and By-Laws, a charge which should not properly be imposed on this office, and which if transferred to general accounts would bring the Secretary's incidental account well within budget limits.

The Treasurer would like to make one suggestion as to methods of bookkeeping. For several years past, it has been the custom of the Editor of Colorado Medicine to retain out of the receipts certain funds for payment of current bills, which custom necessitates later writing a check to ourselves for this amount and depositing it again to our own credit. This does not appear to be good bookkeeping, and it is suggested that the Editor be requested to transmit all funds received to the Secretary and have all payments made through the office of the Secretary and Treasurer.

Examination of the bank balance for the year shows that the smallest amount carried at any time as a bank balance was over \$4,000.00, though most of this was carried in the Savings Account.

It would seem wise at this time that the House of Delegates authorize the purchase of additional bonds to a sum not to exceed \$3,000.00 in order that a higher rate of return might be secured upon the funds of the Society, still leaving a sufficient sum in the Savings and Checking accounts to meet any current requirements.

Respectfully submitted,
L. W. BORTREE,
Treasurer.

The report of the delegates to the American Medical Association was passed, in the absence of the delegates.

John R. Espey, as chairman of the Board of Councillors, made the following verbal report: "The Board of Councillors has nothing to report, there has nothing come to its attention this year, and I think all has been peace and harmony in all five districts."

The report of the Committee on Scientific Work was read by the chairman, J. J. Waring. The report is as follows:

REPORT OF COMMITTEE ON SCIENTIFIC WORK

The program of the 58th Annual Session of the Society in its completed form was mailed about September 1st to every member of the Society. Your Committee decided upon this innovation in the hope that the appeal of the program, in its completed form, would be sufficiently great to draw a much larger attendance than would otherwise be the case.

Reference to this program will show that we have twelve distinguished guests, including Dr. Jabez Jackson, President of the American Medical Association, and Dr. Malcolm L. Harris, President-Elect of the American Medical Association.

The Committee wishes to express its great appreciation of the cordial and close co-operation of Dr. E. D. Downing, Chairman of the Committee on Local Arrangements, in working out many details of the program.

Respectfully submitted,
JOHN B. HARTWELL,
WILLIAM SENER,
JAMES J. WARING, Chairman.

On motion, the report was adopted and ordered placed on file.

The report of the Committee on Public Policy was then read. It is as follows:

REPORT OF THE COMMITTEE ON PUBLIC POLICY

We, your Committee on Public Policy respectfully report as follows:

No State legislation of medical interest since the last meeting.

No national legislation of medical interest has been passed though considerable was introduced. The agitation to liberalize the income tax law in favor of expenses attending medical meetings and so forth goes on as usual. The anti-vivisectionists introduced a bill into the national congress looking with disfavor on vivisection. The Colorado Senators and Congressmen were apprised of the situation and advised us that their inclinations were against the bill.

The irregular cults are attempting to gain

legal equality with the medical profession in the governmental medical services, so far unavailingly.

A matter has been proposed to the Committee looking to liberalization of the present legal restrictions on "privileged communications" in court. The idea as ably expressed by the proponent, Dr. T. J. Evans, was that the present situation was an efficient gag in some circumstances on the physician defending a mal-practice suit. The Committee feels that this proposal may well have some merit and refers it to the House with recommendation that it be referred to a committee with power to take legal counsel.

Two very serious matters confront the profession in the immediate future. First: The organized Chiropractors' strength unknown for reasons later given, probably between six and seven hundred are desirous of extending their activities to include electricity, light therapy, heat, enemas, diet, physical therapy, etc., such being now forbidden by law. They are planning and have much of the foundation work already done, to introduce a bill into the next Legislature looking to the formation of their own board with standards presumably dictated by themselves. The answer is obvious. Were it not we may look at California where such a condition prevails and the chiropractors are doing surgery, anaesthetics and midwifery. Further comment seems superfluous. The existing State Board now licenses them at \$25.00 apiece and is forbidden to give them any examination.

The Colorado State Board of Medical Examiners faces a serious situation. It is charged under the law with a number of expensive duties. Its sole income is fees received. It pays a salary to its secretary, its private secretary and clerk and a pittance to an attorney. With the increasing desire of litigants to traverse the entire legal system the work of the attorney is more essential and more arduous, and should be better requited than we can now afford.

The case of Leo L. Spears went to the doors of the U. S. Supreme Court and took four years before decision was handed down in the Board's favor. Another case now in the courts may be expected to run a similar course.

The Board a year ago under certain new laws increased the requirements for admission to practice to graduation from a Class A or B medical school with the former two years of college work. This has brought about a much higher average of applicants but the number has decreased a third or more. The Board will probably face a deficit this biennium of over \$2,000.00. The members of the Board are paid if there is any money \$15.00 per diem and expenses while in session.

The trend of affairs is steadily toward annual registration of licenses. While this will do much to enable the Board to continue to function, the real advantages of such course inure to the individual physician. After the first year the nuisance of it to him should be minimal. Twelve states already have it and are enthusiastic about it. Fees range from \$5.00 in California down. It is computed that \$2.50 will be required in Colorado as a minimum. The work of the Board is greatly hampered at present by the fact that we do not know where doctors are or are needed, we cannot help locate young doctors, thus helping them and

the communities. We have no check on quacks and bad actors. For instance, one county society received into membership a doctor practicing for a number of years in the State and made him its president. After the doctor was killed it developed that he had never received a license to practice medicine in the State of Colorado. We do not know how many of our 9,000 licentiates in medicine are alive or where they live. We think about 3,000 are living but we know not where. We do not know the location or the strength of the chiropractic opposition we expect this Winter.

We, your Committee, request the organized active support of the profession in their own behalf in the chiropractic matter should it become a reality, and we ask a renewal of your vote of a year ago favoring the annual registration plan so that it may be effectively carried forward in the Legislature.

Respectfully presented,

PHILIP WORK, Chairman.
EDWARD JACKSON,
W. T. H. BAKER,
C. A. RINGLE,
C. H. COOVER,
C. G. HICKEY,
P. J. McHUGH,

President Sedwick: "Dr. McHugh, have you anything that you wish to discuss?"

Dr. McHugh: "There are some features of the report that I thought the Committee ought to be called together and discuss before the report was made, and it appears to me that that would be a very good plan. In mailing a report from one member to another, one will find perhaps some objection to it and doesn't have any opportunity to broaden out his ideas on it by a discussion with the other members of the committee. I have no serious objection to it, but I thought that the committee might have a meeting and discuss the report before it was presented. As four members of the Committee have agreed to it, I am seriously in the minority anyhow, and I think you had better let it go by."

On motion and second the report was adopted and referred to the Reference Committee on Reports of Committees.

The report of the Publication Committee was read by the Secretary, in the absence of members of that Committee. It is as follows:

REPORT OF THE PUBLICATION COMMITTEE

Since the last annual session of the House of Delegates of the Colorado State Medical Society there have been published twelve issues of "Colorado Medicine," aggregating 736 pages of printed matter, including the covers. Of this space 444 pages were devoted to reading matter and 292 pages to advertising.

The reading matter included eighty-one original articles, of which eighteen were read at the last session of the Society. There were fifty pages devoted to editorial comment, thirty-five pages to reports of societies and news items, and fifteen pages to book reviews; the proceedings of the House of Delegates, membership lists, etc., occupied approximately thirty-two pages.

The Wyoming State Medical Society published twelve articles and fifteen pages of editorial comment, which are included in the above report.

The cost of publication of the twelve numbers

was \$4,603.96, being an average of \$383.66 per issue.

The revenue accruing to the Journal is derived from advertising receipts and from the per capita appropriations made by the two State Societies: These items in all amount to \$6,392.70, the per capita appropriation being \$2,160 from Colorado, \$339.09 from Wyoming, and the receipts from advertising being \$3,893.61. The books were closed September 1, 1928.

RECAPITULATION RECEIPTS

Appropriation (\$2.00 per capita), Colorado.....	\$2,160.00
Wyoming Subscriptions.....	339.09
Advertising, sale of copies, etc.	3,893.61

EXPENDITURES

Salary of editor.....	\$ 300.00
Salary of editor's secretary	600.00
Printing and mailing of "Colorado Medicine".....	4,603.96
Commissions on advertising	839.23
Incidental	123.59
Deficit	74.08

\$6,466.78 \$6,466.78

During the year Colorado Medicine received eighty-two books for review, and sixty-eight volumes of exchange journals. All of these became the property of the Colorado State Medical Society and are available at the library in Denver.

The thanks of the Society are due to Doctor Kemper, who has edited Colorado Medicine with much credit to the Society and to himself.

CHARLES S. ELDER,
WM. H. CRISP,
C. S. BLUEMEL, Chairman.

Upon motion and second, the report was referred to the Committee on Reports of Committees.

The President then called for the report of the Committee on Medical Education.

The report was read by J. J. Waring, and on motion and second was referred to the Committee on Reports of Committees. It is as follows:

REPORT OF COMMITTEE ON MEDICAL EDUCATION

The first part of this report will take note of Undergraduate Medical Instruction and the second part will relate to some interesting innovations in Graduate Medical Education.

I.

Correspondence has been held by the Committee with various schools of medicine in the United States and excerpts from their replies are incorporated in this report.

Chicago and Yale University have done away with the Medical School as a distinct entity. Students desiring to take courses in Medicine register in the Graduate School. Two years before graduation they must declare their desire for either the M. D. or Ph. D. degree. At Yale University there is no fixed curriculum. Students come to school with special interest, in chemistry, biology or some other subject and are encouraged to proceed with their study of this special subject while in the Medical School. Advanced elective, extension courses are offered in each of the pre-clinical courses so that we find that very few of the men are taking exactly the same work. Moreover, they are encouraged

to set their own pace and facilities are offered for informal work during the summer.

Duke University is advertising in its catalogue that the M. D. degree will be granted in five years after graduation from High School—two years pre-medical work and three continuous years without summer vacation in the medical school. This will bring graduates into practice at an earlier age. This proposed plan does not reduce the required hours. It is particularly interesting to note that this plan uses the University plant during the summer vacation.

The tendency at Yale University seems to be to consider the individual student a great deal more and give him much more individual instruction. Students enroll in courses but no credits are given. During the student's course in Medicine only two examinations are held: the first is called the Qualifying Examination. It is a comprehensive examination covering the pre-clinical sciences. It is given twice a year and the student may present himself for this examination when he feels that he is prepared. He is expected and encouraged to confer with his instructors to find out when he is prepared. This examination, both written and oral, given under the direction of the Department of Clinical Medicine must be passed before the student can enter upon his clinical work in the Hospital and the Out-Patient Department. The other examination is the final examination which is undertaken when the candidate is prepared to qualify for the degree of Doctor of Medicine. It is evident from this brief outline that at this school, Yale University, the class system and the classical four-year course are practically broken down and that the tendency is decidedly for the student to take more than four years for his work. The Medical student is treated much as the graduate student, heretofore, studying for the degree of Doctor of Philosophy. The Assistant Dean of Yale University writes that Yale University has no special courses in therapeutics but that the treatment of disease is emphasized as part of the work in all the clinical courses.

In general the most outstanding tendency in medical education at the present time is a reduction of the required hours from the old, original standard of 4,000. This year Harvard University has secured permission from the American Medical Association and the Association of American Medical Colleges for the reduction of the required hours down to 2,600. Yale, Johns Hopkins and Chicago Universities have reduced their required hours to approximately 3,000. There is a marked tendency in all the better schools to reduce didactic teaching in the clinical years to the minimum and substitute in its place bedside teaching.

During the past five years the number of schools demanding internship before conferring the M. D. degree has not increased. The Association of the American Medical Colleges considered that it is the duty of the State Licensing Boards rather than the duty of the Medical Schools to require an internship.

Due partly to the fact that many students apply to three or more schools the number of applications for admission far exceeds the number of admissions. In a number of cases the same individual will apply to ten or twelve different schools.

Out-patient department teaching in some instances seems to be receiving greater emphasis

than hospital clerkships. Some of the better schools are placing their clerkships in the Junior year and the out-patient work in the Senior year. Tulane University is planning to erect an out-patient building composed of suites of offices to which Senior students will be assigned. The student will carry on the work of the out-patient department in the same manner as if he were conducting his own office. The Staff of the out-patient department will act as consultants, to be called by the student. This building will also have a 100-bed hospital so that the students may hospitalize a limited number of patients and follow their progress during this period.

The following are the data regarding admission to the University of Colorado School of Medicine:

	1st. Quarter	2nd. Quarter	3rd. Quarter
Year 1927-28:			
Freshman Class	59	47	47
Sophomore Class	40	38	38
Junior Class	46	42	42
Senior Class	36	36	36
Resident students registered			150
Non-resident students registered			36
Probable registration for the year 1928-29:			
Freshman Class			58
Sophomore Class			44
Junior Class			48
Senior Class			41

2.

A number of states are showing increased interest in extension courses for students unable or unwilling to leave their field of practice. Of the various plans undertaken the North Carolina plan is possibly the most interesting and is described as follows by the Council of Medical Education and Hospitals of the American Medical Association:

"In 1916 the State Board of Health, the Medical School and the Extension division of the University of North Carolina, following plans first worked out by the Fourth District Medical Society, arranged two itineraries, each of which was to be covered by a clinician every week for twelve successive weeks. There were six centers in each itinerary: in each center a lecture was given and followed by a clinic. A group or class of physicians was organized in each center and a tuition fee sufficient to cover the salary and traveling expenses of the instructor was charged. Expenses of organization were borne by the university and the State Board of Health. All work with patients was done during the sessions, no cases being worked up in advance.

"The world war interrupted this work, but it was resumed in 1922 and has been carried on every year since with gratifying success. The following are a number of interesting facts regarding it:

(a) In operation six years—1916 and 1922 to 1926 inclusive.

(b) Courses conducted in forty-two centers located in practically all sections of the state.

(c) Total enrollment 1,185. Actual number of physicians registered for at least one course, 852, or between 40 and 45 per cent of those in active practice in the state.

(d) Attendance varied from 76.2 to 90 per cent. No evidence of loss of interest due to repetitions of courses, though several were offered four times.

(e) Subjects were restricted to pediatrics,

pathology and general medicine. The twelve-weeks' course was last year divided into three series of four lectures each, given by three different instructors. Next year there will be two series.

(f) The courses were given in the summer and instructors were brought from outside the state.

(g) Towns of from 1,500 to 50,000 population were chosen as centers. Only those centers guaranteeing an enrollment of at least fifteen were chosen. A personal office-to-office canvas was made in securing enrollments. The tuition fee for each physician was \$30.00.

(h) The length of the session was approximately two hours. After a one-hour lecture on the topic of the day, from one to ten patients were seen, without regard to their bearing on the day's topic; most of the patients presented some diagnostic or therapeutic problem, and this plan worked best, of all the plans tried. Failure to work up cases in advance often resulted in a waste of time, but it had some advantages. Open discussion prevailed and was participated in by practically all present."

New York State has done more than any other State in extension graduate medical education. Most of the work has been formulated and carried out by strong County Medical Societies and in some instances by Medical Schools and by the Department of Health. In all of this extension work the aim of the Medical Societies has been not the training of specialists, but the raising of local standards of general practice. Among the leaders of this movement has been the New York Academy of Medicine, which during the first two weeks in October of this year, will hold a Post-Graduate Course to study the ills of advanced years.

A number of the Medical Schools utilize the summer quarter for giving a portion of the pre-clinical work.

On account of the fact that so many staff members take their vacations in the summer it has been found difficult to man the summer Post-Graduate work. During the past summer the University of Colorado Medical School offered one month Post-Graduate Course in psychiatry. This course had an enrollment of eight. The Medical School hopes to introduce to summer graduates work in other departments as soon as it sees its way clear for securing staff for the summer period.

Respectfully submitted,

MAURICE H. REES,

L. H. McKINNIE,

JAMES J. WARING, Chairman.

The report of the Committee on Medical Literature was then read by the Secretary in the absence of a member of the Committee. The report is as follows:

REPORT OF COMMITTEE ON MEDICAL LITERATURE

To the House of Delegates of the Colorado State Medical Society:

During the past year our Library has had a healthy growth and the increasing demands for service coming from members in all parts of the State have been promptly met. The Library now contains 1,769 volumes. During the year sixty-six calls for service have been received from members residing outside of Denver and 241 books and journals have been loaned. In addition service has been rendered at the

Library to many of our members while visiting Denver.

The Committee requests a continuance of the usual appropriation of \$150 for the purchase of books.

Owing to unusual demands during the past year \$212.90 have been expended for books, being \$62.90 above the appropriation. This excess has been charged against the Library Reserve Fund of \$349.09, leaving a balance of \$286.19.

SUMMARY

Number of volumes in the Library Sept. 1, 1927	1,659
Volumes received through COLORADO MEDICINE	79
Volumes purchased	31
Total volumes in the Library, Sept. 1, 1928	1,769
Cost of volumes purchased	\$212.90
Amount paid from appropriation	150.00
Excess above appropriation	\$ 62.90
Library Reserve Fund Sept. 1, 1927	\$349.09
Excess charged to Reserve Fund	62.90
Balance in Reserve Fund, Sept. 1, 1928	\$286.19
Total visitors residing outside Denver, Sept. 1, 1927-Sept. 1, 1928	120
Shipments	66
Above shipments represented 241 items loaned against 196 last year, and a total of 186 requests for service against 163 for last year.	

Respectfully submitted,
G. B. WEBB, M. D.,
A. J. MARKLEY, M. D.,
W. A. JAYNE, M. D., Chairman.

Books Purchased for the Colorado State Medical Society Library, Sept. 1, 1927 to Sept. 1, 1928

Author—	Title—
Aaron—	Digestive Organs, 1927.
Clark—	Radium in Gynecology, 1927.
Contributions to Medical Science, dedicated to Dr. A. S. Warthin, 1927.	
Cooke—	Polynuclear Count, 1928.
Cowdry—	Cytology, 2 vols., 1928.
Eason—	Goitre, 1927.
Gould—	Medical Dictionary, 1928.
Graham—	Gall Bladder, 1928.
Hamilton—	Industrial Poisons, 1925.
Hare—	Therapeutics, 20th ed., 1928.
Horsley—	Surgery, 1928.
Hunt—	Plastic Surgery, 1926.
Jackson—	Goiter, 1926.
Janet—	Psychological Healing, 1928.
Joslin—	Diabetes, 4th ed., 1928.
Krause—	Head Surgery, 2 vols., 1927.
Muir—	X-ray, 1927.
Myers—	Modern Aspects of Tuberculosis, 1927.
Myers—	Vital Capacity, 1925.
Norris—	Blood Pressure, 1927, 4th ed.
Osler—	Modern Medicine, vol. 6, 3rd ed., 1928.
Riviere—	Pneumothorax, 1917.
Rogers—	Comparative Physiology, 1927.
Roth—	Cardiac Arrhythmias, 1928.
Sansum—	Diet, 2d ed., 2 copies, 1928.
Schwartz—	Surgery, 1928.
Stokes—	Syphilology, 1927.

Books Received From Publishers Through "Colorado Medicine," Sept. 1, 1927 to Sept. 1, 1928

SAUNDERS

Mayo Clinics—Collected Papers, 1926 and 1927.
Reh fuss—Stomach, 1927.
Howell—Physiology, 10th ed., 1927.
Jackson—Bronchoscopy, 2d ed., 1927.
Morse—Applied Biochemistry, 2d ed., 1927.
Stevens—Therapeutics, 7th ed., 1927.
Todd—Diagnosis, 6th ed., 1927.
Richardson—Aseptic Nursing Technic, 1927.
Braasch—Urography, 2d ed., 1928.
Ewing—Neoplastic Diseases, 3d ed., 1928.
Blumer—Bedside Diagnosis, 3 vols. and index, 1928.
De Takats—Local Anesthesia, 1928.
De Lee—Obstetrics, 5th ed., 1928.
Stevens—Manual of Practice of Medicine, 11th and 12th ed.
Pelouze—Gonococcal Urethritis in the Male, 1928.
Jordan—Bacteriology, 9th ed., 1928.
Medical Clinics—6 numbers.
Surgical Clinics—6 numbers.
Beth ea—Clinical Medicine, 1928.
Graves—Gynecology, 4th ed., 1928.
Moynihan—Addresses on Surgical Subjects, 1928.

DAVIS

Drueck—Fistula of the Anus, 1927.
Hess—Feeding of Children, 5th ed., 1927.
Behrend—Diseases of the Gall Bladder, 1927.
Fisher—Ophthalmoscopy, 1927.
Kibbey—Sanitation, 1927.
Cowan—Ophthalmic Optics, 1927.
Schrumpf-Pierron—Tobacco, 1927.
Miller—Thyroid Surgery, 1928.
Marcovici—Handbook on Diet, 1928.
Petty—Diabetes, 1928.
Lorand—Ultra Violet Rays, 1928.
Balyeat—Hay Fever, 2d ed., 1928.

HOEBER

Hume—Max von Pettenkofer, 1927.
Long—Ether Anesthesia, 1928.
Dana—Peaks of Medical History, 2d ed., 1928.
Thomas—Asthma, 1928.
Wright—Muscle Function, 1928.
Alvarez—Mechanics of the Digestive Tract, 1928.
Smith—Aluminum Compounds in Food, 1928.
N. Y. Academy—Lectures for 1927.
Webb—Laennec, 1928.

APPLETON

Hewlett—Pathological Physiology, 1927.
Moore—American Medicine, 1927.
Kelly—Gynecology, 1928.
Solis-Cohen—Pharmacotherapeutics, 1928.
Barnhill—Nose and Throat, 1928.
Rutherford—Eye, 1928.

MOSBY

Hazen—Skin, 3d ed., 1927.
Mead—Diseases of the Mouth, 1927.
Sluder—Nasal Neurology, 1927.
Crossen—Gynecology for Nurses, 1927.
Rose—Physical Diagnosis, 5th ed., 1927.

LIPPINCOTT

Montague—Troubles We Don't Talk About, 1927.
Emerson—Physical Diagnosis, 1928.
Reid—Heart, 1928.

MISCELLANEOUS PUBLISHERS

Strecher & Ebaugh—Psychiatry, 2d ed., 1928—Blakiston.
Hill—Diabetes, 1928—Leonard.
Cancer Control, 1927—American Society for the Control of Cancer.

First Aid and Medical Service in Industry—Johnson and Johnson, 1928.

Redway—Springtime of Physick, 1928.

Schellberg—Mechanics and Chemistry of the Human Body, 1928.

Modern Hospital Year Book, 8th ed., 1928.

U. S. Public Health Service—High Schools and Sex Education.

The report was referred to the Committee on Reports of Committees.

President Sedwick: The next is the report of Special Committees. The first is the report of the Committee on Social Medicine.

The report was read by the Secretary at the request of the Committee Chairman, and on motion and second was referred to the Committee on Reports of Committees.

The report is as follows:

REPORT OF THE COMMITTEE ON SOCIAL MEDICINE

During the past year the services of the Committee on Social Medicine have twice been invoked. The National Tuberculosis Association's Early Diagnosis Campaign last spring was sponsored in Colorado by the State Association and local societies. The Colorado Tuberculosis Society wisely sought to enlist the Colorado State Medical Society in the campaign. Bulletins and pamphlets concerning the early diagnosis of tuberculosis were mailed to all members of the State Medical Society with a letter bearing the signatures of our President and the Committee Chairman.

Recently a questionnaire from Kalamazoo, Michigan, having to do with infant welfare clinics was received by the Secretary of the Colorado State Medical Society, and referred to this Committee. The questions sought to find out how such clinics are organized in our communities, and what is the reaction of our profession to this kind of social work. Dr. C. W. Streamer answered the questionnaire for Pueblo, and your chairman replied for Denver. A copy of the questionnaire and answer is presented with this report.

Respectfully submitted,

C. W. STREAMER,

M. E. V. FRASER,

ROY P. FORBES, Chairman.

The report of the Committee on Hospitals was read by the Chairman, C. O. Giese, and was referred to the Committee on Reports of Committees. The report follows:

REPORT OF THE COMMITTEE ON HOSPITALS

No application for registration of hospitals by the American Medical Association, no applications for registration as suitable for internes, no applications for registration as approved for residency in specialties, have been presented to the Committee during the past year.

The Committee wishes in this report to express its commendation on the stand taken in Weld County by the County Commissioners in barring osteopaths from practicing in the County Hospital. We feel it is within the province of this Committee also to call attention to the fact that the Colorado General and Colorado Psychopathic Hospitals have been running at over-capacity during the past year. It appears that it will be necessary in the near future to ask for additional wings to these institutions.

We are informed further that the management of these institutions expect to ask the Legislature for sufficient appropriations so that

the admission of pay patients will be unnecessary.

The Committee also wishes to recommend the advisability of establishing a State Sanatorium for tuberculosis in Colorado.

MAURICE H. REES,

O. S. FOWLER,

CHAS. O. GIESE, Chairman.

The President then called for a report of the Committee on Military Affairs, John Chase, Chairman.

Dr. Chase: "There have been no military affairs, and therefore the committee has no report."

The report of the Committee on Careers of Members was then read by the Secretary, and referred to the Committee on Reports of Committees. The report is as follows:

REPORT OF COMMITTEE ON CAREERS OF MEMBERS

Your Committee on Careers of Members beg to report as follows: From the data and information which we were able to get in the Denver Medical Library, and from talking with members of the Society who have served on this Committee in the past, it seems to be the consensus of opinion that, to give a comprehensive history of all the members of the Society, it would take more time, more labor and more money than the ultimate end would justify.

The idea of a Committee "On the Careers of Members" originated in the mind of the late Dr. C. D. Spivak. He devoted a great deal of time and energy in working out a plan by which he could condense the various histories of the careers of our members into written form which would be comprehensive, yet not too voluminous. In 1925 he read a paper before the Society entitled, "A Bioethnological Study of the Organized Medical Profession of the State of Colorado." It was published in Colorado Medicine in June, 1926. The paper was highly meritorious, showing much thought and deep delving into the musty pages of the past. At a later date he undertook to procure data and information with the idea of compiling it into book form, but soon realized that the plan was impracticable and gave it up. He sent out questionnaires to all members of the State Society to which they responded indifferently.

We, your Committee, therefore, with the facts of the experience of the able men who have given much of their time to the subject, beg to recommend that, the Committee on Careers of Members be discharged and discontinued.

Respectfully submitted,

WALTER K. REED,

C. E. SIDWELL,

R. G. DAVENPORT,

Chairman.

A report of the Committee to Confer with Boy Scouts was then read by the Secretary, and on motion and second was accepted and referred to the Committee on Reports of Committees. The report is as follows:

REPORT OF COMMITTEE TO CONFER WITH BOY SCOUTS

Your Committee has kept in touch with the Scout activities throughout the year.

We find scouting to be a well organized, progressive, forward movement, looking to the physical, mental and moral development of boys between 12 and 18 years of age.

As a link in the chain of preventive medicine, it appears to be of great value and worthy the

continued interest and activity of physicians, of whom we find a considerable number already "lined up."

The special points of contact with the profession are first aid and life saving (especially water accidents, traumatic hemorrhage and snake bite), personal health and public health.

All scouts are required to have a good grounding in first aid—while those more advanced give special attention to life saving and personal and public health, water supply, camp sanitation, etc.

Several summer camps are maintained in Colorado; instruction in first aid, woodcraft and nature study is given, and a wholesome outdoor program is carried out. Four or five hundred boys attend these camps at very small expense to the boy.

A senior medical student, or some available graduate, is in attendance at each camp.

A number of physicians, in Denver and other Colorado towns, are identified with the movement, in various capacities, some as scout-masters (the most vital function), others as special instructors and examiners in first aid and personal and public health, as members of troop committees or on the scout council.

As a form of public service, scouting offers a man an ideal outlet for all the time and enthusiasm he may have at his disposal, and the results are highly gratifying.

Scout officials in the various cities look to the doctor for advice and co-operation in their work of developing character and good citizenship in the boy, and it is the hope of your Committee that this interest may continue, on an ever increasing basis, from year to year.

Signed for the Committee,

H. S. CANBY, Chairman.

The report of the Committee on Mental Hygiene was read by F. G. Ebaugh, and on motion and second was adopted and referred to the Committee on Reports of Committees. The report is as follows:

REPORT OF COMMITTEE ON MENTAL HYGIENE

Your Committee on Mental Hygiene wishes to report the following activities along the lines of the program for the first year previously presented to the Society.

It was the opinion of the committee that the main purposes of mental hygiene could be best accomplished through the schools and colleges. With this purpose in view a series of lectures were given in April, 1928, at the State Normal School at Gunnison by Dr. Lawrence F. Woolley. Dr. Woolley gave twelve lectures during the three days he visited this institution, emphasizing the need for stressing mental hygiene in the Normal Schools. Arrangements have also been made for a similar series of talks to be given at the State Normal School at Greeley next fall. To further this educational program 1,000 pamphlets were distributed to the superintendents of schools throughout the entire State. These pamphlets included suggestions for reading in mental hygiene. Letters from the superintendents of the schools indicated their interest along these lines as well as the need for the establishment of clinics in connection with the school systems and local physicians.

During the past year the committee felt that the relation between psychiatrists and the legal profession could be furthered with mutual benefit to each by giving a series of talks on

the relationship of psychiatry to the law. These talks were given by Dr. Moleen, Dr. Delehanty, Dr. Work, Dr. H. T. Pershing, Dr. Johnson and Dr. Ebaugh, at the University of Denver Law School. Dean Wolcott has asked that these lectures be continued as a regular part of the University curriculum. Arrangements have also been made for a similar course of talks to be given at the University of Colorado beginning next fall. It is hoped that these talks will lead to further studies concerning criminology, especially the need for further knowledge of the personality of the offender, and the methods of treatment in order to better protect society from this menace. It must be accepted that the results being obtained by the present methods in dealing with criminals are unsatisfactory and that psychiatry can contribute in improving this situation.

We are pleased to report that the traveling clinic work mentioned in last year's report has continued and 28 communities have been visited and 398 children studied. A base mental clinic has been established in Sterling, and following a meeting of the San Juan Medical Society, especially through the interest and efforts of Dr. Robbins, a base clinic will be established this fall in Durango. In connection with the operation of this clinic mental hygiene talks will be given to the San Juan Medical Society, as well as to various community organizations. The establishment of further base mental clinics in close co-operation with the local physicians is advised for the future.

Numerous talks have been given on mental hygiene subjects during the past year and every member of your Committee has attempted in all ways possible to disseminate knowledge regarding the prevention and early treatment of nervous and mental disorders and defects.

T. C. TAYLOR,

F. W. LOCKWOOD,

T. R. LOVE,

C. S. BLUEMEL,

C. W. THOMPSON,

F. G. EBAUGH, Chairman.

The report of the Committee on Periodic Health Examination was read by the Chairman, C. F. Kemper, and upon motion and second was referred to the Committee on Reports of Committees. The report is as follows:

REPORT OF COMMITTEE ON PERIODIC HEALTH EXAMINATIONS

While curative medicine is not and cannot wane, preventive medicine must inevitably increase. The movement for periodic examinations of the apparently healthy is a logical and necessary step in the advancement of preventive medicine. If the handicaps of youth—friendly allies of disease—are to be discovered and removed, or if the progressive degenerative diseases of age are to be intercepted or retarded, the habit of periodic examinations must come into more general practice.

Life insurance companies have, by their activities along this line, stimulated and justified the movement. The National Education Association has placed health education first in importance among the aims of elementary education and, as a consequence, periodic physical examination of school children is becoming the rule rather than the exception. The American Medical Association and the Colorado State Medical Society have from time to time emphasized the need of individual support and practice

on the part of physicians. Therefore, your Committee has tried to bring the matter to the attention of all through the columns of the State Journal; to stimulate interest by giving it a prominent place on the state program in the form of an address by President-elect, Dr. M. L. Harris of Chicago; and, wherever possible, to ask the various county societies to adopt and foster it as a society policy.

Probably little more can be accomplished by propaganda alone. The need now seems to be to enlist the support and co-operation of each local society in devising ways and means of assisting its members in putting the program into practice. We therefore recommend, if an executive secretaryship is created by this society, that that office be advised to consider this concrete problem as an urgent and immediate part of its work. Otherwise we can only recommend that an attempt be made to continue to keep it before our membership by the present method.

Respectfully submitted,

GEO. H. CURFMAN,

ALLEN H. HARRIS,

C. F. KEMPER, Chairman.

The report of the Committee on Full-Time Secretary was read by the Chairman, R. S. Chamberlain:

Dr. Chamberlain stated that the report had been gone into by every member of the Committee with the exception of Dr. Gale, who is in Europe. The report was then read, and is as follows:

REPORT OF COMMITTEE ON FULL-TIME SECRETARY

The Committee finds that the work expected of the Secretary of the Colorado State Medical Society has grown to such proportions that it is now impossible for him or any other physician to assume any further duties and do justice to them and at the same time practice medicine. If our State Medical Society wishes to progress, to hold its own with other States and to do the work expected by the American Medical Association, it is imperative that we employ a full-time Executive Secretary. Quite a number of States have followed this plan and on investigation we find that it has proven highly successful. To the best of our knowledge not one State has reverted to the old plan.

The duties of the Executive Secretary would be largely administrative and executive. He would be the Business Manager of the Society. The present Secretary, Trustees and regular officers would surrender none of their present authority; his work would be directed by our regular Secretary.

He should be a man with ability to take over the business management of "Colorado Medicine." The money now paid the editor, about \$2,000 per year, should be applied to his salary. By energetic methods he could increase the advertising and circulation very materially, thus increasing our income from that source; in fact he should be able to put the Journal on at least a self-supporting basis.

He should personally visit and at times talk before our Constituent Societies and keep them informed of the activities of his office through regular bulletins.

He should keep an up-to-date card index of every physician in the State, whether a member of our Society or not, a brief history of each one, his school, from where he came, his stand-

ing, whether he should be blacklisted for ethical reasons, etc.

Through properly directed effort he can increase our membership, as there are about 400 non-members in the State who are eligible to join. He should keep a record of all medico-legal cases, looking to the ultimate development of a medical defense program.

He should keep in close touch with Colorado legislation, be informed on all bills concerning our profession, and warn us of proposed vicious legislation in time for us to abort it. He should be expected to attend the regular sessions of the Legislature and be prepared to give information on medical subjects to legislators; in fact, be our representative acting through the direction of our Committee on Public Policy. All the administrative duties as well as the present secretarial duties should be concentrated in one office.

If we continue our public educational program his assistance will be very valuable, that is, in arranging for speakers, gathering data for essayists, etc.

He should be Secretary to all our Committees, attending to all details, gathering information, etc.; consequently our Committees will function 100 per cent.

He can help arrange for our annual meetings, attend to the letting of space for commercial exhibits, assist the Entertainment Committee, arrange hotel accommodations, rates, etc.

He should keep in touch with industrial problems and co-operate with the various State boards concerning physicians, our Medical Schools, Hospitals, Chamber of Commerce, Better Business Bureau and prosecuting attorneys.

In time the office of our Executive Secretary will become an Information Bureau, giving out information to the newspapers, the lay public, as well as the medical profession. The newspapers will soon learn to call the Secretary's office when they wish to obtain authentic information upon medical subjects.

The standing of our State organization will be comparable to any in the United States and will be helpful to every individual member, the profession as a whole and the general public.

After a thorough investigation of the cost of a full-time Secretary, we find that the expense to the individual member is so small that it is really not worth discussion.

The Committee recommends that the House of Delegates of the Colorado State Medical Society approve the adoption of a full-time Secretary plan and authorize the Executive Committee or Trustees to immediately work out the necessary details and secure such a Secretary, either layman or physician; and also that the House of Delegates, at this session, make whatever changes in our by-laws they may deem advisable for financial or other reasons, to make the plan effective.

Respectfully submitted,

N. B. NEWCOMER,

A. J. NOSSAMAN,

R. S. CHAMBERLAIN,

Chairman.

President Sedwick: "You have heard the report of this Committee. To me, this is the most important Committee report that we have had, and it ought to be given very, very painstaking consideration. What do you wish done with this report?"

Dr. Blotz: "I move the report be adopted and referred to the proper Committee."

The motion having been seconded, was put to a vote and carried, and the report referred to the Committee on Reports of Committees.

The report of the Committee on Co-operation with the State Pharmacal Association was read by the Secretary.

Upon motion and second, the report was referred to the Committee on Reports of Committees. The report is as follows:

REPORT OF COMMITTEE TO CO-OPERATE WITH STATE PHARMACAL ASSOCIATION

The Chairman of your Committee to Co-operate with the State Pharmacal Association met two members of their Committee to Co-operate with the Colorado State Medical Society at their meeting in Estes Park last June.

Numerous topics were discussed and it was agreed that more co-operation and harmony between the two bodies was greatly to be desired.

That this might be accomplished, it was suggested that some member of each Committee appear at the proper meeting of the other Society and made known the desires of each that would, to them, tend to bring about greater co-operation and harmony.

Your Committee recommends that a Committee to co-operate with the State Pharmacal Association be continued.

Signed:

M. D. BROWN,

H. W. STUVER, Chairman.

The Secretary then read several communications dealing with the plans of the national Committee on the Cost of Medical Care, ending as follows:

"In this letter it is mentioned that the Committee would like to get funds appropriated from this Society and from the Medical Association in each State. That is a matter that should be considered by the House of Delegates along with the general subject.

"In presenting this, Mr. President, I should like to suggest that you appoint a Committee of men of sound judgment to act during the coming year in connection with any agent that comes to the State to pursue this investigation. Rather than make that a motion, I will ask that this matter be referred to the Committee on Miscellaneous Business, with the suggestion that a Committee be appointed in accordance with my tentative promise to Dr. West."

The communications were so referred.

B. F. Blotz: "I would like to take up one question, the matter of the fee schedule of the State Compensation Fund should be looked into, if it has not already been done. I think there are several things in that fee schedule that need revising. I object to doing a herniotomy for \$50.00, and I object to a maximum of \$200.00, when the hospital gets \$195.00 and I get \$5.00, and I think you will find there are a number of other things in there that could be changed."

President Sedwick: "Dr. Blotz, would you like to make some specific motion?"

Dr. Blotz: "Well, it seems to me that that matter could properly be referred to the Committee on Public Policy, but if not, I would be very pleased to make a motion at this time that a special Committee be appointed for that purpose."

H. A. Smith: "I second the motion."

The motion was put to a vote and carried.

Adjournment was then taken to 8 o'clock a. m. Tuesday, September 11, 1928.

Second Meeting of the House of Delegates, September, 11, 1928.

President Sedwick: "The delegates will kindly come to order. The first order of business will be the roll call."

The Secretary called the roll, and the President announced a quorum present.

Secretary Stephenson: "I have a letter signed by the Mesa County Medical Society advising that at a meeting of the Mesa County Medical Society Dr. C. G. Cary was elected alternate delegate to represent the Mesa County Society in the House of Delegates of the State Medical Society. (Letter read.) As Chairman of the Credentials Committee, I would approve this, with the consent of the House, and seat Dr. Cary from Mesa County."

On motion, seconded and carried, Dr. Cary was seated.

President Sedwick: "The first business will be the report of the Credentials Committee, which was referred back to that Committee for further report.

Secretary Stephenson: "Dr. Snyder and I have considered the report of the Credentials Committee, and in the absence of Dr. Frank R. Spencer, our decision will be a majority decision of the Committee, but without Dr. Spencer's co-operation."

After explaining that the constitutional provision in question was one of long standing and which had not been affected by subsequent amendments, the Secretary continued:

"The Committee felt, after the action that was taken last night, that its action was mandatory—that is, the Chair ruled on the provisions of the constitution, and his ruling was supported by a vote of the House, so that we had nothing to do but to make the Credentials Committee's report conform with the provision of article XIII of the constitution, as thus interpreted. We found that we were, therefore, in error in accepting as delegates three names: W. B. Hardesty, a Vice President from Larimer County; J. R. Espey, a Councillor from Las Animas County, and A. W. Robbins, a Councillor from San Juan County."

On motion, seconded and carried, the corrected report was adopted.

The President then announced the name of N. A. Madler as a member of the Committee on Appropriations in place of A. W. Robbins, and the name of H. A. Smith in place of W. K. Reed.

The President then called for further Committee reports and E. D. Downing gave the following report of the Committee on Local Arrangements, which was referred to the Committee on Reports of Committees.

REPORT OF LOCAL ARRANGEMENTS COMMITTEE

The Committee has endeavored this year to bring the doctors together in three general entertainments, a Dutch lunch, barbecue and banquet. The golf course feature has grown so large as to have to be placed under a separate Committee, with L. G. Brown in charge.

Following the wishes of the Society individual tickets have been made for these entertainments so that the local Society has not been called upon to contribute.

The exhibits speak for themselves. The Colo-

rado firms have been very kind to us in taking space in the commercial section and it is hoped that many of the doctors will register with these houses. Some of the exhibits in the scientific section have been loaned from the American Medical Association meeting at Minneapolis, but most of them represent the work of Colorado men. Particular attention is called to the reprints, books and instruments produced by our State members.

It is suggested that the men interested in x-ray work present to the Society a working plan for the display of large numbers of x-ray films. The present tracing cloth system is not suitable for detail work, is a temporary affair and could easily be perfected.

It is suggested that our Secretary propose to the Secretaries of other States the plan of getting the American Medical Association exhibits sent to the State Societies. At Minneapolis seventy out of 1,100 Colorado physicians registered. It is hoped that by bringing these exhibits here a greater number will be able to view them.

This is absolutely my last appearance as an exhibit man for the Society. If we are to continue as a leader in this work a business man must be employed by the Society to carry on. It is impossible for a professional man to do this work without neglecting his practice.

The difficulties and cross currents have seemed almost unsurmountable this year and it is my opinion based on three years of effort with the exhibits that we should get a full-time man to organize the various endeavors of the Society.

Respectfully yours,

E. D. DOWNING, Chairman.

A question of C. E. Harris was answered to the effect that the report of the Committee on Full-Time Secretary had not been finally adopted but had been referred to the Committee on Reports of Committees.

On a call by the President for matters of new business, N. A. Madler of Greeley, spoke as follows:

Greeley Hospital Situation and Invitation to Meet in Greeley

Dr. Madler: "I think that many of you know that in the last six or eight months history has been made and is being made in Greeley in regard to the hospital situation, and in making history up there we have had our trials and tribulations. Briefly, to acquaint those who probably do not know anything about it, I would say that the Greeley Hospital is a hospital of about seventy-five beds, being owned by Weld County, and is operated through its Board of County Commissioners, acting as a Board of Trustees. For the last four or five years we have been trying to get the commissioners to adopt the minimum standards of the American College of Surgery with respect to the hospital, but on the advice of the County Attorney we have not been able to do that. They have adopted everything else excepting one proviso, in which there is no compromise with the American College of Surgeons, that is that osteopaths shall not be permitted to practice in the hospital. Then last January the decision of the Texas case was published, and that gave the County Attorney enough support to advise the commissioners to go ahead and adopt these minimum standards, which they did last March, as of March 1st. A month later the osteopaths brought suit, and the first ground was won

about two months ago by the County Commissioners. It was brought up again before the same Judge yesterday, and that decision was won by the County Commissioners. Now it will go to the State Supreme Court and from there on it will go to the United States Supreme Court, because, as you know, the osteopaths have the backing of the Colorado Association and also of the United States Association, so they have plenty of money backing them in carrying this suit on.

"Some months ago I received a letter from Dr. Stephenson, our Secretary here, asking us what the State Medical Association could do to help us along, and in that letter was incorporated a letter from President Sedwick, offering assistance in any way, shape or form, financial or otherwise, in this situation, because they recognize, as you all must recognize, that that is a question of great importance, a question that affects not only Greeley, but the State of Colorado, and probably the United States, as far as the hospital situation is concerned.

"At that time we did not see fit to accept the offer of your officers, particularly the offer of finances, because we felt, as the commissioners felt, that they wanted the public up there to understand that this was strictly a fight of their own; that is, they adopted this as lay members, simply because they were convinced that the minimum standards as adopted by the American College of Surgeons was for the best interests of the people, and they did not want the local Society or the local physicians or the State Society to come in, financially or otherwise, except with their moral support.

"Now, however, there comes a time in my mind to avail ourselves of this offer that came to us so kindly through your state officers, and that is in this way: I do not believe that the State Association can do anything better to help us and put moral support behind the County Commissioners than to come to Greeley next year and meet with us in the annual session. Aside from the fact that you can give us great moral support, we of course of Greeley, the Weld County Medical Society, feel as though it would be a great stimulus for better and more scientific work up in Northern Colorado. We probably will have, commencing the first of the year, two new commissioners; it looks that way, so that only one of the old commissioners will carry on. We can assure the House of Delegates that if they accept the invitation of the Weld County Medical Society to meet with us next year we shall do everything possible to make their stay an enjoyable one. You need not have any hesitancy about hotel facilities or halls, or anything of that sort. We shall try to, and we will, put on a meeting that will give you no cause to regret coming up, and I am not unmindful of some of the meetings of the past, particularly the meeting some years back at Pueblo. I remember that they put on a meeting down there that I shall never forget. It will be hard to come up to something of that sort, but we shall do our best. So now let me again extend to you a most cordial invitation to come to Greeley and have your meeting next year."

President Sedwick: "Dr. Madler, I do not know whether that needs action by the House, but I believe it would be just as well if you would put it in the form of a motion and have it referred to the Nominating Committee, because they will also have to consider this."

Dr. Madler: "I will so move, that this invitation of the Weld County Society be referred to the Nominating Committee."

The motion, having been duly seconded, was put to a vote and carried.

L. W. Bortree then discussed the matter of making special appropriation for financial aid to the Weld County Society, but upon assurance from Dr. Madler that it would not be needed, the matter of special appropriation was dropped, and action was taken according to the following motion by Dr. Moleen:

G. A. Moleen: "I move, in order to proffer support to or recognition of this matter, that the attention of the Committee on Public Policy be called to it, that they take an interest in this matter and present such aid as they may see fit to the Weld County Medical Association; that it be referred to that Committee to act, in conjunction with Weld County for their interests."

The motion was seconded and carried.

Adjournment was then taken to 8 o'clock a. m. Wednesday, September 12, 1928.

Third Meeting of House of Delegates, Wednesday, September 12, 1928.

On call to order by President Childs, the roll was called and a quorum announced.

By unanimous consent of the House, A. L. Burnett was seated as a delegate from San Juan County in place of A. W. Robbins.

On motion, duly seconded and carried, reading of the minutes of the previous meetings was dispensed with.

President Childs: "Otero County has designated Dr. Blotz as an alternate, and this morning I have a note signed by the Secretary of that Society certifying Dr. R. S. Johnston also as a duly elected delegate, but on referring to the Credentials Committee's record I find Otero County is entitled to only one delegate, because apportionment is made according to the membership of last December 31st, and at that time it had only twenty-five members."

The President then called for the report of the Auditing Committee.

The Chairman, G. C. Cary, gave a verbal report. (The written report was submitted later, and acted upon. See p. 413.)

The report was formally accepted.

The report of the Nominating Committee was then read by the Chairman, G. H. Curfman, and is as follows:

REPORT OF NOMINATING COMMITTEE

Your Committee on Nominations desires to make the following report of its selection of nominees for officers of the Colorado State Medical Society for the year 1928-29:

For President, Wm. Senger of Pueblo.

First Vice President, W. M. Shultz of Central City.

Second Vice President, T. R. Knowles of Colorado Springs.

Third Vice President, F. E. Willet of Steamboat Springs.

Fourth Vice President, O. P. Shippey of Saguache.

Delegate to the American Medical Association, J. W. Ames of Denver.

Alternate Delegate to the American Medical Association, L. H. McKinnie of Colorado Springs.

Councillor for the Third District, George D. Andrews of Walsenburg.

The Secretary and Treasurer each having one

year more of a three-year term to serve, no recommendation for these offices is made.

Committee on Publication, for three-year term, C. S. Bluemel of Denver; for the two-year term, Geo. A. Moleen of Denver.

Your Committee recommends that the 1929 session of the Society be held in Greeley, Colorado.

Respectfully submitted,

HAROLD T. LOW,

W. S. CHAPMAN,

WM. H. HALLEY,

A. C. HOLLAND,

GEO. H. CURFMAN, Chairman.

Upon motion and second the report of the Nominating Committee was accepted and placed on file.

The report of the Committee on the Reports of Officers was then read by Lorenz Frank, Chairman.

The report is as follows:

REPORT OF COMMITTEE ON REPORTS OF OFFICERS

The Committee on the Reports of Officers wishes to emphasize the President's plea that a greater effort be made to enroll more physicians who are eligible to membership in the constituent societies.

We feel that the matter of allowing traveling expenses of the officers of the Society be referred to the Budget Committee by a resolution from the House of Delegates.

We agree with the Secretary that a Committee be appointed to co-operate in this State with a representative of the National "Committee on the Cost of Medical Care" when he shall arrive to study our State.

J. M. SHIELDS,

J. B. CROUCH,

L. W. FRANK, Chairman.

The report was adopted and ordered to be placed on file.

A report of the Committee on Reports of Committees was then called for and was read. The report is as follows:

REPORT OF COMMITTEE ON REPORTS OF COMMITTEES

We, the Committee on Reports of Committees submit the following report. We have reviewed the reports of the

Committee on Scientific Work,

Committee on Local Arrangements,

Committee on Credentials,

Committee on Public Policy,

Committee on Publication,

Committee on Medical Education,

Committee on Social Medicine,

Committee on Hospitals,

Committee on Careers of Members,

Committee to Confer with Boy Scouts,

Committee on Mental Hygiene,

Committee on Periodic Health Examinations,

Committee on Full-Time Secretary,

Committee on Co-operation with State Pharmaceutical Association,

Committee on Medical Literature.

We commend the Committees for their work during the year and their careful reports at this session.

Specifically, we would recommend that the Committee to Confer with Boy Scouts be not re-appointed for the coming year, but that the Society continue to manifest an interest in this type of work.

The Committee on Scientific Work reports

an unusual number of distinguished guests at this annual meeting. For this we wish to express our thanks to the far-sightedness and industry of Dr. J. J. Waring and associate committeemen.

Dr. E. D. Downing, Chairman of Committee on Local Arrangements, is again to be commended for his remarkable service to this Society along these lines.

The Committee to Co-operate with the State Pharmacal Association has recommended that we reciprocate with this Association in the matter of speakers at the annual meeting. We recommend such a policy.

We recommend the acceptance of the report of the Committee on Careers of Members in which they advise that the Committee be discontinued.

The Committee on Public Policy and Legislation has advised the appointment of a Committee to consider the matter of the present legal restrictions on "privileged communications" in court. They have further advised continued support of the annual registration of physicians. We recommend that action be taken on both of the recommendations.

The Committee on Full-time Secretary has recommended that the office of a full-time Secretary be created and that the Trustees or Executive Committee be authorized to work out the necessary details incident to the employment of such an officer of the Society. We recommend the adoption of the findings of this Committee and agree that the legislation pertaining to the profession and community welfare will be more adequately supervised; that the State Journal will be more efficiently and profitably managed; that the Secretary's work will be greatly broadened in scope; and that greater cohesion will exist among county societies and their individual members through the efforts of such an officer. We, therefore, recommend such action on the part of the House of Delegates necessary to the creation of such an office and the maintainance of such an officer in the employ of the State Society.

W. K. REED,
F. M. HELLER,
C. F. KEMPER, Chairman.

The President then called for action on this report.

Upon motion and second, duly carried, report of the Committee was adopted. Then followed a long drawn-out discussion participated in by H. T. Low, President Childs, Secretary Stephenson, A. C. Holland, H. A. Smith, G. A. Moleen and L. W. Bortree.

The questions at stake were whether the adoption of the Reference Committee's report obligated the Society to the adoption of the full-time secretary plan; what changes in the by-laws and constitution would be necessary, and what should be the proper mechanism of such change; whether a special Committee should be appointed to confer with the Appropriations Committee; what the increased financial obligation of the Society would be and several irrelevant points.

There appeared no discussion adverse to the adoption of the plan except that of Dr. Moleen who merely suggested that while he was in favor of adopting the plan he would not wish to sacrifice Society membership in so doing.

Letters from the Presidents of the Florida and West Virginia State Societies, both Societies

commensurate with our own in membership, were read by President Childs. Both have adopted the full-time secretary plan and are enthusiastic about it.

It was the feeling of the majority that the adoption of the Reference Committee's report would not commit the House to the adoption of the plan, but to make the matter conclusive a final action was taken on a motion of H. T. Low that the report of this Committee be adopted with the exception of that portion which related to the report of the Committee on Full-Time Secretary, and that that be held over until the next meeting of the House for definite action.

An amendment to the by-laws was offered by H. A. Smith and laid on the table for consideration on the following day. (See p. 414.)

A Finance Committee Authorized

L. W. Bortree: "In the report of the Auditing Committee it concurred in my recommendation for the House of Delegates to purchase bonds. I think we ought to have authorization for the purchase of bonds in a sum not exceeding \$3,000.00."

President Childs: "That suggestion is a good one, but it requires the appointment of a Finance Committee, if you approve that plan. Do you care to make a motion that a Finance Committee be appointed? A Finance Committee, it seems to me, is a good thing to exist in any corporation, and I think we should have one."

G. A. Moleen: "I move, Mr. Chairman, that the President appoint a committee of three to serve as a Finance Committee of this Society."

The motion was seconded and carried.

The meeting then adjourned until 8 o'clock a. m., September 13, 1928.

Fourth Meeting of the House of Delegates, September 13, 1928.

The House was called to order at 8 a. m. by President Childs.

The Secretary called the roll, and the President announced a quorum present.

On motion, the reading of minutes was dispensed with.

Election of Officers

The next order of business being the election of officers, the report of the Nominating Committee was then re-read by the Secretary.

President Childs: "You have heard the reading of the report of the Nominating Committee. What is your pleasure with this report?"

Dr. Harris: "I move the adoption of the Nominating Committee's report."

President Childs: "Motion is made and seconded that the report of the Nominating Committee be adopted as read. Is there any discussion? If not, all those in favor please say Aye; contrary-minded, No. It is unanimously voted that the report of the Nominating Committee be accepted in toto."

There being no nominations from the floor, and only one nominee for each office, the nominees were declared unanimously elected.

The report of the Auditing Committee was thereupon read by G. C. Cary, Chairman. The report is as follows:

REPORT OF AUDITING COMMITTEE

We, your Auditing Committee, have examined the Treasurer's records and find the same to be correct.

We feel that the Treasurer is sound in his advice to buy \$3,000.00 additional bonds, and

would recommend that a Committee be appointed by the President, consisting of the President, Secretary and Treasurer, to be authorized to buy such bonds.

Respectfully submitted,

O. E. COLEMAN,
FLORENCE FEZER,
G. C. CARY, Chairman.

A report from the Committee on Miscellaneous Business was then called for and was read by A. C. Holland. It is as follows:

REPORT OF COMMITTEE ON MISCELLANEOUS BUSINESS

Your Committee on Miscellaneous Business begs leave to submit the following report:

Only one matter was referred to this Committee for consideration, that being the Five-Year Program of the Committee on the Cost of Medical Care. This was presented in the form of a pamphlet together with letters and copies of letters from the files in the office of State Secretary Stephenson. After due consideration, your Committee recommends that the President appoint a Committee of five outstanding physicians in this Society to co-operate with the investigator when he visits Colorado. It is further recommended that one member of the proposed Committee be located in each of five different cities in the State so that the investigator may find co-operation in whatever locality he seeks his information.

Respectfully submitted,

C. H. GRAVES,
P. J. CONNOR,
A. C. HOLLAND, Chairman,

It was moved, seconded and carried that the report of the Committee on Miscellaneous Business be adopted as read.

Under unfinished business, the next consideration was that part of the report of the Committee on Reports of Committees dealing with the proposed employment of a full-time executive secretary. This was re-read by the Secretary.

President Childs: "You have heard the report that we are to act on this morning in this report of the Committee on Reports of Committees. What is your pleasure?"

C. E. Harris: "I move the adoption."

G. A. Moleen: "I wanted a point of information. It said the 'Trustees or the Executive Committee.' Who are the Executive Committee?"

President Childs: "I think myself that that should be made more definite. I think there should be a special motion made for the appointment of a definite Committee to look into this, with power to act, because it is a very important subject, and it seems to me that the men who should be appointed on such a Committee should not be too widely scattered."

Dr. Harris: "I move an amendment that the President, Secretary and Treasurer constitute the Committee, with power to act."

President Childs: "I think it would be a good plan to have in addition to that Presidents of one or two of the local Societies."

Dr. Harris: "It is understood that you would have power to confer with anybody that you want to."

President Childs: "But I would like to have them on the Committee, if that is agreeable to you."

Dr. Harris: "It is agreeable to me, and it is so understood."

President Childs: "We will entertain the motion. Motion made and seconded that a Committee be appointed consisting of the President, Secretary and Treasurer of the State Society, with the understanding that they have the privilege to get the advice of Presidents of local Societies. That motion is satisfactory to you, Doctor?"

Dr. Harris: "Yes, sir."

Motion seconded.

President Childs: "The motion is on the substitution of the motion as made by Dr. Harris, and it has been made and seconded, and if there is no discussion, all those in favor of that motion please say Aye, contrary-minded, No. It is unanimously carried. Now, the question before the House is the original motion, authorizing the adoption of the plan for a full-time executive secretary. The original motion is now before the House. Is there any discussion? If not, all those in favor of the original motion as amended please say Aye; contrary-minded, No. The motion, with the amendment, is carried."

"Now, the next thing is to read the amendment to the by-laws that was offered by Dr. Smith yesterday morning, and which is on the table."

The proposed amendment was read by the Secretary and is as follows:

AMENDMENT TO BY-LAWS

(Proposed September 12, 1928. Adopted September 13, 1928.)

Chapter XII. Section 2.—In line three, change "five" to "ten." In line six, change "\$2.00" to "\$7.00."

Section 3.—In line seventeen, change "five" to "ten."

H. A. Smith: "I move its adoption."

Motion seconded.

President Childs: "Motion has been made and seconded that the amendments to the by-laws as read be adopted. Anything further? If not, all those in favor of the amendments to the by-laws as read please say Aye; contrary-minded, No. Carried. Now, it seems to me that there should be a little more definite understanding of how your Committee is to make a report, when that report is to be made, when the Executive Secretary is to be in existence, and so on. It seems to me all that is left wide open, nothing said about it."

Dr. Holland: "I think that is the way it is intended. I do not believe that this House ought to be bothered with any detail, and I do not believe that the Committee should be restricted in the matter. I do not think there is anybody who knows, unless you have more inside information than I have, when and where it will be practical to institute the work of the full-time Secretary. Personally, I am quite willing to leave this thing to the committee to work out. I do not believe they should be hampered or restricted in any way."

President Childs: "I just wanted that definitely understood."

Dr. Yegge: "I think the officers ought to go ahead and investigate and find a good man and at a suitable time have him start, say, the first of the year, so they can check up on what he is doing, and so that at the end of the year we will know whether he has been successful."

President Childs: "Does everyone approve of what Dr. Holland and Dr. Yegge have said with reference to practically giving this Com-

mittee full power to act? If anyone disapproves, we want to have it made known now. It will be taken for granted, then, that the House of Delegates here assembled approves of giving the Committee full power to act."

The report of the Committee on Appropriations was thereupon read by William C. Finnoff, and on motion and second the report was adopted. It is as follows:

REPORT OF THE COMMITTEE ON APPROPRIATIONS

The Committee on Appropriations submits the following report for your consideration and recommends that the following mentioned appropriations be allowed:

Annual Meeting Expense

Reporting	\$ 255.00
Guests	500.00
Stationery, programs, badges and incidentals	150.00
Total	\$ 905.00

Full-Time Secretary's Office

Full-time Secretary's salary—Not to exceed	\$4,000.00
Secretary's clerk and incidentals	1,200.00
Traveling expenses, etc.	500.00
Total	\$5,700.00

Colorado Medicine

Two dollars (\$2.00) per member	
Editor's salary	\$ 300.00
Total	

Treasurer

Bond	\$ 25.00
Safety deposit box	2.00
Incidentals	3.00
Total	\$ 30.00

Library

Library	\$ 150.00
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Mental Hygiene

Mental Hygiene Committee	\$ 100.00
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Grand total

To meet the increased expenses created by a full-time Secretary, your Committee suggests that the following be eliminated from the offices enumerated below.

Secretary's Office

Secretary's salary	\$ 200.00
Secretary's clerk	500.00
Incidentals	150.00
Total	\$ 850.00

Editor's Office

Editor's clerk	\$ 600.00
Stationery, postage and incidentals	100.00
Total	\$ 700.00

Grand total

In the past the Editor of Colorado Medicine has received approximately \$985.00 in addition to his fixed salary of \$300.00 allowed in the annual appropriation. Your Committee suggests, that since a full-time Secretary shall reduce the Editor's duties very materially, at least \$600.00 of the commissions on advertising in Colorado Medicine be diverted toward paying the expenses of the office of the full-time Secretary.

With the changes in the budget that have been suggested, the increased expenses of the

Society will be approximately \$4,155.00. If \$600.00 or \$700.00 can be taken from the commissions derived from advertising, the added expenses to the Society can be reduced to \$3,555.00 or \$3,455.00. This can readily be met by an increase of \$5.00 in the annual dues.

HARRY A. SMITH,
N. A. MADLER,
WILLIAM C. FINNOFF,
Chairman.

Dr. Yegge: "Do I understand the commissions at the present time go to the Editor, all of them, on advertising?"

Dr. Finnoff: "In the past the Editor looked after the advertising, as I am informed, and all the commissions go to him, and under the new regime the new Secretary becomes Business Manager, and we suggest that some of those commissions be diverted to go to his salary."

Dr. Yegge: "I think if the Secretary is going to run the paper, he should get out and get all the advertising he can."

Dr. Finnoff: "The salary of the full-time Secretary will be a fixed salary, probably no commission. The Editor's salary is probably inadequate. If any of you have done editing, you know that the reading of proof, and so on, takes a good deal of time, and we allowed a certain amount toward the paying of his salary."

Executive Secretary to be Under Bond

Dr. Holland: "I notice in that report an item of \$25.00 for bond for the Treasurer. Don't you think our full-time Secretary should be put under bond also? He is going to handle the funds of our Journal. I think some provision should be made for bond for him as well."

President Childs: "Do you wish to make a motion to that effect?"

Dr. Holland: "What is the cost of one of those bonds?"

Dr. Bortree: "Twenty-five dollars for \$10,000.00"

Dr. Holland: "I move you the sum of \$25.00 be added to that appropriation to pay for bond for the full-time Secretary."

Dr. Bortree: "On that bond, I would like to say under the system of vouchers used the Treasurer could not get away with any money. Dr. Stephenson has always transferred money on his personal check—that is, dues and advertising receipts, to the sum of \$9,000.00 or \$10,000.00 a year, coming to the Secretary's office. The sums handled by the Treasurer are handled by check that has to be countersigned by the President and Secretary before becoming legal, and I think it is very important, if this Executive Secretary is to handle the funds, that he be placed under bond."

President Childs: "You have heard the motion that the Executive Secretary, when he is appointed, be placed under a \$10,000 bond, costing the Society \$25.00, and that that \$25.00 be added to the report of Dr. Finnoff."

After some discussion, Dr. Holland offered a revised motion to the effect that the Executive Secretary, when employed, be put under a \$10,000.00 bond. The motion was seconded, put by the President, and carried.

On further motion, the report of the Appropriations Committee was adopted.

At this juncture, under new business, by consent of the House, President Childs brought up a suggestion of Melville Black, which was made in the general meeting in discussion of the

paper of Dr. M. L. Harris and which was ordered referred to the House of Delegates for action. It was in condemnation of certain institutions which paid doctors a small fee for physical examinations, a nation-wide practice, and eventually sold the report to the patient for a considerably larger sum. Dr. Black's suggestion was as follows:

Protest On Employment of Physicians by Corporations for Profit to the Corporation

(Introduced in general meeting by Melville Black and referred to House for action.)

Be it resolved that a Committee be appointed to register protest against the employment of physicians by corporations for public health examinations by which the physician receives a paltry sum and the corporation receives a remuneration of from 400 to 500 per cent on its investment.

Dr. Finnoff: "I move it be referred to the Committee on Public Policy."

The motion was duly seconded, put to a vote and carried.

On motion of W. C. Finnoff, the Secretary was instructed to express to the local Committee on Arrangements, the Committee on Scientific Work, and to all individuals who had contributed so well to the success of the meeting; also to the hotels, the public press and the City of Colorado Springs, for their hospitality and service, the extreme appreciation of the Colorado State Medical Society.

A resolution was thereupon read, with respect to post mortem examinations, by C. E. Harris, as follows:

Resolution On Autopsies Upon Physicians

WHEREAS popular prejudice against post mortem examinations is an obstacle to medical progress and

WHEREAS the laity properly expects leadership in health programs from the physician, therefore be it

RESOLVED by the House of Delegates of the Colorado State Medical Society that we urge upon our membership the advisability of fore-ordering post mortems upon their own bodies to the end that we may with better grace ask for post mortems from the laity. Be it further

RESOLVED that a copy of this resolution be forwarded to our constituent County Societies with a request for official action.

C. E. HARRIS.

Motion was made by A. C. Holland, seconded, put and carried, that the resolution be adopted.

On request for other reports, O. M. Gilbert, A. M. A. delegate, gave the following verbal report of the last meeting of the American Medical Association:

REPORT OF DELEGATES TO AMERICAN MEDICAL ASSOCIATION

Report of O. M. Gilbert

I depended upon my senior to make the report, consequently am not prepared to make it in as much detail as it should have been. So much detail comes up before the House, it is impossible to go into it other than in a general way. I will just mention a few of the high points.

There was a protest against the present income tax ruling against physicians. You all know the general rule, that we are not allowed traveling expenses in going to our meetings or for post graduate work, or anything of that kind. The Committee has been continued, and they are working upon the officials in charge of

the matter, and it is thought that they will get a reconsideration of it. It is felt that it has been a matter of great discrimination against the medical profession that we are not allowed such credit.

Medical education was discussed at great length, and there was a proposal looking forward in a few years to requiring an academic degree for internes to or overlapping with the medical degree, so that each man have an AB degree or its equivalent to take up medicine. That in general was disapproved as being impractical for at least some years to come.

Along with that, you might say overlapping, was the problem of the rural physician; the Farmers' Committee, the Grange Committee, had memorialized the national body to modify things in some way so that they could get doctors enough in the rural communities. Many propositions or suggestions were made. Of course, the common one, that of shortening the course, was frowned down in general. It was suggested to encourage schools to make it possible for pupils to graduate in three years of four quarters instead of four years of three quarters, which means the same time, only condensed; and that is being encouraged to a certain extent. It seems that there is no proper solution, nothing that can be officially done to force doctors back into the rural communities, and nobody has been able to devise a plan which will. It is realized that it is a great problem, but no real solution of it has been found. Some of them thought educational propaganda should be instituted showing the young doctors the opportunities and what physicians had developed from the rural communities, but that is purely a suggestion.

The home for aged physicians was voted down as not practical or not needed. A survey brought the matter up in a new light and the Committee is continued and will report in another year. Sometime, perhaps, a national home will be provided. The general sentiment existed that the physicians who were needy would not go to such homes, and that if some method was devised to apportion them the same amount of funds to live on right at home, it would be a better one. The question was referred back to the Committee for action next year.

Medical defense came up in a general way, but again the general opinion was that it was not the proper thing for the national medical body to take up. The prohibition problem, the right of physicians to prescribe, and so on, was discussed at considerable length, but was kept down, as Dr. Harris said, as a major issue, and in fact only came up incidentally to some other discussion, and of course we all know every effort is being made to remedy the abuses.

The opinion was very strong against the tendency to duplication of Societies which do not supplement the work of the official bodies, our County and State Societies, and even National, public health measures, and so on. In fact, I think a little bit of criticism was even aimed at the Gorgas memorial fund as more or less duplicating the work of the national body. I think even the Colleges of Physicians and Surgeons were hit a little bit on that idea. In other words, our staff meetings in our hospitals are going beyond the scope of what the hospital is supposed to be and are carrying on the functions of a County Society; and recom-

mendation was made, and we are asked particularly to bring that information back to you, that hospital staffs be requested to limit their activities to reports concerning the hospital and not to general medical affairs, which I believe is a good suggestion.

At the election of officers you probably all know that Dr. M. L. Harris was elected President, and that Portland is selected as the next meeting place. There was a problem that was given considerable thought as to the referendum proposition, that the Judicial Council's actions be subject to review of the House, which was voted down as not in the best interests. Another thing, there was action taken making for more liberality in the placing of delegates. Now it is found that many States have only one delegate, and if that delegate did not chance to be there, that State had no representation, and a provision was made by which, without going back to the home office, a man could be seated.

The report of Senior Delegate Carmody was not delivered due to an oversight in connection with his absence from the United States. The report, subsequently submitted to the Secretary, is incorporated below for the purpose of record:

Report of T. E. Carmody

As your delegate, I have attended two sessions, at Washington, D. C., and Minneapolis, Minn.

The business of the House of Delegates requires a great deal of attention, and it is necessary for a delegate to spend most of his time, while attending this Society, on routine business and very little attending the sections of the scientific work.

While I appreciate the honor conferred upon me, by preference I would spend my time in my own section. However, I believe it incumbent on this Society to send a man, as delegate, for a long period of years, and one who can be depended upon to attend the meetings.

The business transactions at the Minneapolis meeting, which was attended by your other delegate, Doctor O. M. Gilbert, and myself, were of a constructive character, relating to the recommending of shortening of the medical course to three years of four quarters rather than four years of three quarters, and the recommendation that it be considered unethical for full-time men to allow fees from wealthy patients to be collected by the medical school.

A number of other important matters came before the House, all of which have been published in the Journal.

Respectfully submitted,

T. E. CARMODY.

There being no further business to come before the House of Delegates, the President declared the session adjourned sine die.

Total of delegates seated, 45.

Total registration, members 378, visitors, 53.

F. B. STEPHENSON, Secretary.

PROCEEDINGS OF THE GENERAL MEETINGS*

September 11—First Day

Morning Meeting

The Convention was called to order at 9 o'clock a. m., by Dr. William A. Sedwick, President.

F. B. Stephenson, Secretary, present and acting.

The President asked that the President-elect, Dr. Samuel B. Childs, be escorted to the front.

Dr. Childs was then formally installed as President for the ensuing year and assumed the chair.

The scientific program was then begun, the printed program being followed in the following order:

"Removal of Magnetizable Metal from the Eye-ball," read by the author, W. C. Bane, M. D., Denver. Discussed by F. B. Stephenson, Melville Black, Edward Jackson, William C. Finnoff, and by Dr. Bane in closing.

"Observations on the Treatment of Tabetic Neurosyphilis," read by the author, George A. Moleen, M. D., Denver. Discussed by Franklin G. Ebaugh, William Senger, and by Dr. Moleen in closing.

Address—"Periodic Health Examinations," by Malcolm L. Harris, M. D., President-elect, American Medical Association. The announcement having been made that Dr. Harris was perfectly willing to have his address discussed, the following members took part in the discussion: F. P. Gengenbach, Edward Jackson, Charles N. Meader, W. C. Howell, C. E. Tennant, Melville Black, and Dr. Harris in closing.

"Status of the Calmette (BCG) Vaccination Against Tuberculosis," read by the author, Maurice Katzman, M. D., Denver. Discussed by Gerald B. Webb, Emanuel Friedman, C. H. Boissevain, Henry Sewall, F. P. Gengenbach, William N. Beggs, and Dr. Katzman in closing.

"Partial Gastrectomy for Peptic Ulcers Coincident with Lymphosarcoma (Hodgkin's Disease) of the Stomach. Recovery," read by the author, Leonard Freeman, M. D., Denver. Discussed by C. F. Kemper, L. H. McKinnie, Malcolm L. Harris, Donald Balfour of the Mayo Clinic, F. B. Stephenson, W. W. Grant, R. B. Porter, Sanford Withers, and by Dr. Freeman in closing.

Afternoon Meeting

After formally opening the meeting, the President's address** was delivered by Dr. Samuel B. Childs, Second Vice President W. B. Hardesty in the chair.

The program of scientific papers was then continued as follows:

"A Paramount Problem of Modern Medicine," read by the author, Horace G. Wetherill, M. D., Monterey, California, Past President, Western Surgical Association. Discussed by Henry Sewall, Jabez Jackson, Past President American Medical Association; C. E. Cooper, A. W. Metcalf, and Dr. Wetherill in closing.

"Isolated Fractures of the Transverse Processes of the Lumbar Vertebrae," read by the author, J. B. Hartwell, M. D., Colorado Springs. Discussed by Atha Thomas, and Dr. Hartwell in closing.

"Oesophageal Diverticula," read by the author, George E. Rice, M. D., Pueblo. Discussed by G. B. Kent.

"Retro-displaced Uterus. Its Significance," read by the author, Cuthbert Powell, M. D., Denver. Discussed by C. B. Ingraham, William Senger, and by Dr. Powell in closing.

"The Diagnosis of Tracheobronchial Tuberculosis in Childhood," read by the author, I. D. Bronfin, M. D., Denver. Discussed by S. W. Schaefer, J. J. Waring, F. P. Gengenbach,

*Papers and discussions which formed a part of the scientific meetings of the session will appear in succeeding issues of Colorado Medicine.

**Published in full in the October, 1928, issue of Colorado Medicine.

Josiah N. Hall, Edgar A. Peterson, Emanuel Friedman, and by Dr. Bronfin in closing.

Evening Meeting

The evening was given over to addresses by Donald Balfour, M. D., of the Mayo Clinic, on "An Outline of the Surgery of the Stomach and Duodenum"; Leroy Crummer, M. D., Omaha, Nebraska, on "The Various Editions of Harvey"; Will J. Mayo, M. D., Mayo Clinic, who discussed the beneficial effects of modern general education upon the attitude of the public towards medicine. The President's reception followed, held in the ball room of the Antlers Hotel.

September 12—Second Day

The meeting having been formally opened by the President at 9 o'clock a. m., Frank C. Mann, M. D., of the Mayo Clinic, delivered an address on "Physiology of the Liver and Gallbladder." The interest and appreciation of the members was manifested by prolonged applause.

President Childs then asked the indulgence of the meeting for a few moments to make the following remarks upon the question of employing an Executive Secretary:

"I am going to ask the indulgence of the Society for a very few moments, because I think the Society should know something about the plans that are being contemplated for this Society by the House of Delegates, namely, the employment of an Executive Secretary. I will be very brief.

"I have two letters that I will read, which may give you some added information. In the first place, I wrote to Dr. Olin West, Secretary of the A. M. A. He says he knows of no means of providing funds for the State Medical Society for the employment of an Executive Secretary except through the membership of the Association.

"Now, that is the question we are all thinking about, whether raising the dues is going to disrupt our State Society and County Societies.

"This thing is going to come up for final action before the House of Delegates tomorrow morning, and we do not want anyone to be misinformed about anything pertaining to this. I will read the two letters, one from the West Virginia State Society and the other from the Florida State Society. Each letter is quite illuminating and may give you some information that will make you feel better.

(Letters read)

"I shall not read anything further, but I want to acquaint you with the facts that have been worked out in these two State Societies with which I have had correspondence; and a condition equally satisfactory has been found to exist in other State Societies; so that if it is carried through and passed by the House of Delegates that we employ an Executive Secretary, and you find that an extra assessment is levied in the dues for meeting these expenses, the Society should not deteriorate and lose its membership, but it should have the same experience that these other Societies have had. I thought it only fair, as it is a matter that concerns every individual member of the County or State Society, that I acquaint you with these facts."

The printed program was then taken up in the following order:

"The Bromsulphalein Liver Function Test as a Diagnostic Aid in Hepatic Diseases," read by the author, W. Bernard Yegge, M. D., Denver.

Discussed by Frank C. Mann, M. D., Mayo Clinic, J. N. Hall, and by Dr. Yegge in closing.

The following papers were read in the Symposium on Pyelitis:

"Pyelitis from the Standpoint of the Urologist," by Harry Wear, M. D., Denver.

"Pyelitis in Children," by Roy Forbes, M. D., Denver.

"Pyelitis in Gynecologic and Obstetrical Patients," by C. B. Ingraham, M. D., Denver;

"Pyelitis from an Internist's Standpoint," by R. W. Arndt, M. D., Denver.

Discussed by C. H. Boissevain, Wm. M. Spitzer, Foster H. Cary, John W. Ames, W. C. Howell, C. E. Edson, H. T. Low, and by Doctors Wear, Forbes and Arndt in closing.

September 13—Third Day

Following the formal opening of the meeting, the President introduced Jabez Jackson, M. D., President of the American Medical Association, who addressed the meeting on the subject of "Surgery of the Abdomen With Relation to Physiology." The President expressed, on behalf of the Society, its appreciation of this most interesting address.

The program was continued as follows:

"Diagnosis and Treatment of Ductless Glandular Disorders," delivered by William Engelbach, M. D., St. Louis.

"Sunlight and Life," read by the author, Bernard Wyatt, M. D., Tucson, Arizona.

In conjunction with the preceding paper and along the same line, A. M. Forster, M. D., Colorado Springs, presented a movie reel, prefaced by short remarks on heliotherapy.

The Secretary then gave a short resume of the transactions of the meetings of the House of Delegates.*

The program then continued as follows:

"Rabies in Colorado," read by the author, E. R. Mugrage, M. D., Denver.

"Diagnostic Tuberculosis Clinics in Colorado," read by the author, Charles O. Giese, M. D., Colorado Springs. Owing to the lateness of the hour, this paper was not discussed.

Dr. W. A. Palmer, Chairman of the Committee on Necrology, then presented the report of the Committee, which was read by the Secretary, and is as follows:

REPORT OF THE COMMITTEE ON NECROLOGY

It is with a feeling of sadness that we pause to pay our tribute of love and appreciation to those members of the Colorado State Medical Society who have been called during the past year to cease their labors.

The memory of a life devoted unselfishly to the "relief of suffering and the prolongation of life" which each of them has left us is perhaps the most inspiring heritage possible.

Your Committee reverently submits the following report:

Dean Nolan Beacom, Denver, Colorado, September 7, 1927. Tuberculosis. Born 1894, Illinois. Graduated University of Colorado Medical School, 1922. Licensed in Colorado 1922. Member Medical Society of the City and County of Denver.

Charles D. Spivak, Denver, Colorado, October 16, 1927. Cancer of liver. Born 1861, Russia. Graduated from Jefferson Medical College, Philadelphia, 1890. Licensed in Colorado 1896.

*See complete report of meetings of House of Delegates, this issue.

Member Medical Society of the City and County of Denver.

Conrad George Broeker, Denver, Colorado, November, 1927. Cardiac dilatation and myocarditis. Born 1892, Indiana. Graduated from University of Louisiana, 1914. Licensed in Colorado 1915. Member Medical Society City and County of Denver.

George Byron Packard, Denver, Colorado, February 23, 1928. Pneumonia. Born 1852, Vermont. Graduated from Vermont College of Medicine, 1874. Licensed in Colorado 1890. Member Medical Society City and County of Denver.

Ward Thomas Burdick, Denver, Colorado, March 24, 1928. Uremia. Born 1878, Pennsylvania. Graduated from American Medical College, St. Louis, 1908. Licensed in Colorado 1911. Member Medical Society City and County of Denver.

Hiram B. Mann, Denver, Colorado, June 5, 1928. Tuberculosis. Born 1889, Tennessee. Graduated from University of Tennessee, 1913. Licensed in Colorado 1923. Member Medical Society of the City and County of Denver.

John Douglas Crisp, Denver, Colorado, June 11, 1928. Uremia. Born 1858, Illinois. Graduated from Denver and Gross College of Medicine, 1905. Member Medical Society of the City and County of Denver. Licensed in Colorado 1881.

John Perry Kelly, Golden, Colorado, June 11, 1928. Apoplexy. Born 1858. Graduated from Michigan University, 1881. Licensed in Colorado 1881. Member Medical Society of the City and County of Denver.

Orin Asbury Grantham, Littleton, Colorado, February 20, 1928. Skull fracture. Born Missouri, 1878. Graduated from Barnes Medical College, St. Louis, Mo. Licensed in Colorado 1908. Member Arapahoe County Medical Society.

Francis A. McNeill, Dove Creek, Colorado, October 24, 1927. Apoplexy. Born Illinois, 1849. Graduated from Eclectic Medical College, Ohio. Licensed in Colorado 1888. Member San Juan Medical Society.

Jacob Campbell, June 9, 1928, Boulder, Colorado. Carcinoma. Born Missouri, 1863. Graduated from University of Colorado Medical School, 1887. Licensed in Colorado 1887. Member Boulder County Medical Society.

J. C. Todd, January 6, 1928, Boulder, Colorado. Tuberculosis. Born 1874. Graduated from University of Pennsylvania, 1900. Licensed in Colorado 1903. Member Boulder County Medical Society.

Ernest Dryer, Tucson, Arizona, June 15, 1928. Tuberculosis. Born 1893. Graduated from Cincinnati University, 1919. Licensed in Colorado 1919. Member El Paso County Medical Society.

A. A. Blackman, Colorado Springs, Colorado. Cerebral hemorrhage. February 26, 1928. Born 1861, Montreal. Graduated from University of Colorado School of Medicine, 1902. Licensed in Colorado 1902. Member El Paso County Medical Society.

H. C. Freudenberger, Colorado Springs, Colorado, December 21, 1927. Pneumonia. Born 1874. Graduated from Ensworth Medical College, St. Joseph, Mo. Licensed in Colorado 1921. Member El Paso County Medical Society.

J. A. Wenk, Colorado Springs, Colorado. Born Wisconsin, 1892. Graduated from Physicians and Surgeons College, Los Angeles, California.

Licensed in Colorado 1918. Member El Paso County Medical Society.

E. L. Sadler, Fort Collins, Colorado, April 19, 1928. Diverticulitis. Born 1875, Missouri. Graduated Hahnemann Medical College, Chicago, 1900. Licensed in Colorado 1903. Member Larimer County Medical Society.

C. H. GRAVES,

H. R. BULL,

W. A. PALMER, Chairman.

The President then announced that the Fifty-eighth Annual Session of the Colorado State Medical Society stood adjourned, sine die.

F. B. STEPHENSON, Secretary.

WOMAN'S AUXILIARY

The President's Report

The president's report is always a summary of all reports.

In giving this one, I want to begin by expressing my appreciation and gratitude, to the assisting officers and committees, who have so faithfully and conscientiously carried out all plans formulated by the board.

Their splendid cooperation and understanding have made it possible for the president to give a report that is a credit to the Auxiliary. For various reasons the president has not been able to have a called meeting, but has kept in touch with each committee, and officer, by correspondence. Mrs. F. B. Stephenson, our gracious ex-president whose splendid work of the previous year paved the way for this year's plans, consented to head the membership committee, and has made another effort to organize more county units, and though she has reported no more units, she has planted seed that will bear fruit this coming year, and her efforts have resulted in 100 new members at large.

The State Auxiliary has stressed the introduction of Hygeia into the public schools, and has given sixty-two subscriptions to rural and remote schools throughout the state.

Where we have been able to check up, the results have proven worth-while.

Some rural schools have reported that Hygeia was the only literature they received, and that the children actually wore out each issue by daily use. Because they had so little time to teach health subjects in these schools where teachers had three and four grades to instruct, they did appreciate our gift.

Some teachers reported that they used Hygeia health articles almost exclusively for oral and written work.

The Auxiliary has given fifteen subscriptions of Hygeia to rural schools that sold the greatest number of Red Cross Seals during the annual drive.

Shortly after taking office, the president got in touch with several county papers, and through their cooperation, the Auxiliary has had more than 200 articles printed from Hygeia. The topics were selected in most instances by physicians, and were headed, "PRINTED FROM HYGEIA, BY COURTESY OF THE WOMAN'S AUXILIARY OF THE COLORADO MEDICAL SOCIETY."

Mrs. F. P. Gengenbach, who has from the organization of the Auxiliary, had real vision of what an auxiliary could be, and has realized the finest flower of that idea in the work that she has done for us this year.

She has been national president and is now a member of the national executive board. When I asked her to head the Public Health Committee,

she was most responsive, and immediately got in touch with the State Board of Health.

She formulated a letter that set forth concisely and comprehensively the reasons why every child should have its birth registered. This letter was sent to the national president, the state president, the president of the State Board of Health, and some of the county presidents of the Medical Society, for their indorsement; then 500 of these letters were sent out to superintendents of schools, county nurses, patriotic societies, and other rural organizations.

Mrs. Gengenbach's letter also contained an urgent plea to cooperate with the State Board of Health in fighting contagious diseases.

The Auxiliary has sponsored several broadcastings on Child Welfare, and talks by physicians on the importance of health habits. The president has had two articles in Colorado Medicine, with a view to encouraging a wider interest in auxiliary membership.

Mrs. Markley has been most efficient and splendid, and has carried the Hygeia chairmanship through a successful year, and responded when I needed a delegate to represent Colorado at the national meeting. She served in this capacity only under protest, but she represented us graciously and beautifully.

Mrs. Kemper has made the proper contacts editorially, in an able and satisfactory way.

Mrs. Hegner has had a tremendous job and has responded to all responsibility in a most gratifying manner.

Mrs. Crouch and Mrs. Haney, my two splendid secretaries, have filled their offices in a most satisfactory way.

The president makes the following recommendations:

That the Auxiliary allow fifteen subscriptions to Hygeia, for prizes to rural schools selling the greatest number of Red Cross Seals this autumn.

That a continued effort be made to organize more county units. That a copy of the next issue of the national quarterly be sent to every potential member, so that those wives who have not affiliated with the Auxiliary may be informed of the worth-while things being done in other states, and of the appreciation of their efforts by the American Medical Association.

I have had a year of pleasure that I could not have anticipated. I feel richer by far for having had the opportunity to work with you. I have made delightful contacts that have ripened into friendships that I shall always look forward to renewing each year.

Friendships that are helpful and inspiring, friendships that will grow with the years, warmer, sweeter, lasting.

I want to thank my co-workers, my executive board, and committees, for their responsive, helpful and untiring service.

Because the new president, whom you will all feel is the logical person, because of her charm and personality, her vision and energy, and because of her ability, you will all find inspiration and a desire to support her in whatever she undertakes. To her and her new officers, I extend all good wishes.

MRS. LILLIAN B. MORRISON.

Report of Chairman of Educational Committee

During the year 1927-1928 the names of Mrs. Robbins, 761 Third Avenue, Durango, and Mrs. Claud Richmond, 222 East Dale, Colorado Springs, were presented and mailed to Mr. Cargill who

supplied the required literature. Subscriptions to six Healthylands, one Healthyland and Hygeia, two one-year Hygeias and fifty-three five-month Hygeias were given. Of the fifty-three five-month subscriptions, thirty-two were given to rural schools as prizes for selling Christmas seals, and twenty-one were given complimentary to visiting nurses. Several acknowledgments of same were received.

Respectfully submitted,

MRS. A. J. MARKLEY,
Chairman of Education Committee.

Auditor's Report—1927-1928

The books of the treasurer have been examined, found correct, and in order.

Report of the Publicity Committee—1927-1928

News and items of general interest to Auxiliary members have appeared in Colorado Medicine and in various newspapers throughout the state.

Respectfully submitted,

MRS. C. F. KEMPER,
Chairman Publicity Committee.

Report of Denver County

Woman's loyalty to the cause of humanity has been once more shown by the wives of the members of the Denver County Medical Society in the organization of the Woman's Auxiliary, thus adding one more to the national organization. The Denver County Auxiliary was organized in January, 1927, with Mrs. G. P. Lingenfelter as president. This being a new form of organization, and members being only acquainted in various small groups, there was much to be accomplished in a social way, to promote a better fellowship among our doctors' wives, and thus pave the way for future organized health and educational work.

A most delightful and well attended card party was given at the Denver Country Club.

Later another social function including a shower of fruit and jellies and many other delicacies to be enjoyed by the inmates of Sands House—a Tubercular Home for Poor Girls—which is supported by various public donations.

In January, 1928, Mrs. T. Mitchell Burns assumed the responsibilities of the Auxiliary and with the able assistance of the other officers and of her various committees has been promoting numerous activities.

The new home for the nurses of the Denver General Hospital was completed the later part of January, and the Auxiliary sponsored a card party to increase the funds, and also had a very generous "Book Shower" for the new library for the nurses.

The gymnasium was filled to overflowing, and the afternoon proved most profitable, financially and socially.

The Auxiliary joined the State Federation of Woman's Clubs and also the Denver Federation thus extending to a very wide degree their avenues of health, education and welfare work.

The Auxiliary feels very happy indeed over their being able to establish permanent headquarters at Denver General Nurses' Home in the main lounge for all regular meetings and entertainments, and have also provided their own dishes for private service.

A parliamentary law class was conducted for ten weeks with seventeen enthusiastic members. Twenty health talks of ten minutes were booked

at various clubs and groups of pre-school age. These talks were given by members of the Speakers' Bureau of the Auxiliary and covered, Periodic Health examination, Birth Registration and Hygeia. Owing to a number of avenues for Hygeia subscriptions our chairman has been handicapped in her work. However, she reports several renewals and several new subscriptions.

During Health Week twenty-five members were enlisted on committees for window displays covering foods, such as cooked cereals and various bran products; sanitary health clothing for children; visiting nurses' display, and drugs.

There was a drug inspection to check on all drugs displayed that they should be authorized by the Medical Society.

The Auxiliary has assisted the Denver Federation of Women's Clubs by acting on the Committee for "Beautifying Denver"; also have members to assist on the following committees: Hotel, Auto and Decorating, to entertain the convention of the Colorado Federation of Women's Clubs, which was held in Denver early in September.

Arrangements are being made for some radio health talks, sponsored by the Auxiliary.

Before closing for the summer vacation the Auxiliary entertained the Denver County Medical Society at a dinner dance at the Denver Country Club and the doctors were delightfully convinced that the Denver County Auxiliary is on the medical map.

MRS. F. MAY BURNS,
President.

There are 176 paid-up members for 1928 with a balance of \$105.22 in the treasury to date.

MRS. C. H. MORIAN,
Educational Chairman.

Report of San Juan County

Durango, Colo., Sept. 6, 1928.

The San Juan Unit now numbers fourteen members, which is a very good showing for this county. The meetings held four times a year have been successful. I might add here that we hold our meetings on the same day and same hours as the Medical Society hold theirs, and since we have organized the men report their meetings are better attended. Two meetings this year were held with members living outside of Durango. Our out-of-town members have been very loyal, and have been an inspiration which has helped to bring about a very cordial social relation. Our members during the past year have been interested in the work of the Red Cross, the promoting of "Hygeia," and the Tuberculosis Seal Campaign. Although our activities have been limited, we feel the Unit has been very successful.

With kindest regards to you, I am,

Very sincerely,

MARGARET E. LINGENFELTER.
(Mrs. H. A.)

Reprt of Otero County Unit

Our meetings were purely social, the ladies being so far apart we were always happy to meet and get acquainted.

Meeting the same day our husbands met, we had luncheon at the same hour and visited a short period in the afternoon.

We did place Hygeia in seven rural schools, all of which were very grateful.

MRS. B. F. BLOTZ.

NEWS NOTES

Through the urgent effort of Dr. George P. Lingenfelter and other local members the Association of Military Surgeons of the United States will hold their meeting in Denver, Colo., September, 1929.

The American Association of Railway Surgeons held its annual meeting in Chicago, Oct. 31 to Nov. 2, 1928. Among the men who read papers before that meeting were Drs. R. W. Johnson and George W. Miel. There were other physicians in attendance from the state, including Drs. J. L. Rowe, F. H. McNaught and R. A. Wolfe of Rocky Ford, and others. Dr. R. W. Johnson was elected first vice president of the organization.

The Department of Ophthalmology of the University of Colorado is offering a three months' course covering the fundamentals of this specialty. The course will begin Jan. 1, 1929. Students of ophthalmology have recognized for a long time that there is a dearth of such courses not only in this country but abroad. At the present time there is evidence that there will be a good enrollment in this first course.

Dr. and Mrs. George B. Packard have announced the birth of a daughter.

Dr. and Mrs. J. E. Struthers have announced the birth of a son.

Dr. and Mrs. Robert G. Packard have just returned from a week's visit in Chicago.

BENJAMIN H. MATTHEWS

In the death of Dr. Benjamin H. Matthews, this Society has lost a friend, a student, a philosopher; a man of quick perception, deep sympathy and a profound knowledge of human problems. Instinctively a teacher, an advanced thinker on almost every subject, he had very definite ideas which were always fearlessly expressed, commanding the attention of his hearers. In metaphor he was unexcelled, and his ability to say just the right thing on the spur of the moment was uncanny.

Dr. Matthews was a true friend to the poor, and those in trouble, no matter whether friends or strangers, appealed strongly to his sympathy. There was no limit to his helpful service. He would get up in the middle of the night to relieve the sufferings of pauper or prince alike, unmindful of remuneration or of his own health. His diagnostic acumen in obscure and baffling problems was the envy of his closest medical friends, and his solution was quickly expressed in terms of therapy. There are few men with the attainments that Dr. Matthews possessed.

We unite in expressing our regrets at having lost so interesting, so valuable and so worthy a friend and counselor. We extend to his wife and son our most profound sympathy.

Let these resolutions be spread on the minutes and a copy sent to his family.

(Signed) MELVILLE BLACK,

KENNETH D. A. ALLEN,

TRACY R. LOVE.

List of Members of the Colorado State Medical Society
December 1st, 1928

HONORARY MEMBERS

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Minnie C. T. Love	Denver	Denver
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Amesse, John W.	Denver	Denver	Barnard, Hamilton I.	Denver	Denver
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Anderson, T.	Denver	Denver	Bassow, Solomon H.	Denver	Denver
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Andrus, Lester S.	Denver	Denver	Baum, Harry L.	Denver	Denver
Apperson, Ed L.	Denver	Denver	Beachley, John V.	Stratton	Kit Carson
Arbini, Eva Anna	Denver	Denver	Beaghtler, Amos L.	Denver	Denver
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Arndt, Rudolph W.	Denver	Denver	Beall, Walter C.	Denver	Denver
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Arnold, C. R.	Colorado Springs	El Paso	Beck, N. C.	Denver	Denver
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Bennett, W. C.	La Junta	Otero	Calkins, R. W.	Cortez	San Juan
Bergen, Frank L.	Burlington	Kit Carson	Calonge, G. E.	La Junta	Otero
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Crouch, J. B.	Colorado Springs	El Paso	Epler, Crum	Pueblo	Pueblo
Crysler, W. C.	Littleton	Arapahoe	Erich, A. F.	Delta	Delta
Cunningham, A. A.	Denver	Denver	Espey, J. G.	Trinidad	Las Animas
Cunningham, T. D.	Denver	Denver	Espey, J. R.	Trinidad	Las Animas
Curfman, G. H.	Salida	Chaffee	Esserman, A. L.	Denver	Denver
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Davis, Jefferson W.	Denver	Denver	Feder, J. M.	Peetz	Northeast
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Dean, E. F.	Denver	Denver	Finney, R. H.	Pueblo	Pueblo
Dean, F. C.	Denver	Denver	Finnoff, Wm. C.	Denver	Denver
DeBeque, W. A. E.	DeBeque	Denver	Fischer, V. B.	Boulder	Boulder
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Gaines, Joseph R.	Las Animas	Otero	Harvey, Horace G.	Denver	Denver
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Gardner, G. C.	La Junta	Otero	Hawthorne, H. M.	Weldona	Morgan
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Garwood, H. G.	Denver	Denver	Hays, W. E.	Sterling	Northeast
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Gauss, Harry	Denver	Denver	Hegner, C. F.	Denver	Denver
Gelien, Johanna	Denver	Denver	Heimlick, A. F.	Grand Junction	Mesa
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George, McLeod M.	Denver	Denver	Henderson, H. B.	Denver	Denver
Gibson, J. D.	Denver	Denver	Hepler, A. H.	Newcastle	Garfield
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Gilbert, O. M.	Boulder	Boulder	Hersom, R. G.	Pueblo	Pueblo
Gillaspie, Carbon	Boulder	Boulder	Heusinkveld, Gerrit	Denver	Denver
Gillett, O. R.	Colorado Springs	El Paso	Heuston, H. H.	Boulder	Boulder
Gilmore, G. B.	Colorado Springs	El Paso	Hick, L. A.	Delta	Delta
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Goldhammer, Sam'l	Denver	Denver	Hickey, H. L.	Denver	Denver
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Good, Brooks D.	Colorado Springs	El Paso	Higbee, O. F.	Fowler	Otero
Goodson, H. C.	Colorado Springs	El Paso	Higbee, Daniel R.	Denver	Denver
Gorman, W. Edward	Colorado Springs	El Paso	Higgins, John W.	Denver	Denver
Gorsuch, John C.	Denver	Denver	Hill, E. C.	Denver	Denver
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Graham, Chas. A.	Denver	Denver	Hillkowitz, Philip	Denver	Denver
Graham, Donald A.	Denver	Denver	Hills, W. K.	Colorado Springs	El Paso
Graham, E. V.	Denver	Denver	Hills, W. W.	Colorado Springs	El Paso
Graham, R. F.	Greeley	Weld	Hillyer, W. E.	Boulder	Boulder
Grant, W. W.	Denver	Denver	Hinshaw, J. D.	Canon City	Fremont
Graves, C. H.	Canon City	Fremont	Hirose, Tadayuki	Denver	Denver
Graves, H. C.	Canon City	Fremont	Holden, Eugene	Eaton	Weld
Green, Berryman	Denver	Denver	Holden, G. Walter	Denver	Denver
Green, H. A.	Boulder	Boulder	Holland, A. C.	Colorado Springs	El Paso
Greene, Lawrence W.	Denver	Denver	Holland, Jasper C.	Nederland	Boulder
Greig, Wm. M.	Denver	Denver	Hollingsworth, R. K.	Littleton	Denver
Groshart, O. D.	La Junta	Otero	Holmes, R. E.	Canon City	Fremont
Grover, B. B.	Colorado Springs	El Paso	Honstein, C. E.	Littleton	Arapahoe
Groves, Dale O.	Calhan	El Paso	Hook, Merrit B.	Denver	Denver
Guthrie, Alice B.	Denver	Denver	Hopkins, G. A.	Glenwood Springs	Garfield
Guthrie, Ewing C.	Denver	Denver	Hopkins, Guy H.	Pueblo	Pueblo
Guthrie, J. F.	Vineland	Pueblo	Hopkins, Hugh John	Denver	Denver
Gwinn, L. M.	Fairplay	Chaffee	Hopkins, John R.	Denver	Denver
Gydesen, C. S.	Colorado Springs	El Paso	Hopkins, T. M.	Denver	Denver
Hageman, S. V.	Las Animas	Otero	Horton, D. J.	Pamona, Calif.	Weld
Haggart, John	Durango	San Juan	Hotchkiss, Walter K.	Brighton	Denver
Haggart, W. W.	Denver	Denver	Hotopp, T. M. H.	Aspen	Garfield
Hall, A. Z.	Eaton	Weld	Houf, W. H.	Iliff	Northeast
Hall, Josiah N.	Denver	Denver	Howard, C. J.	Rutland, Mass.	Denver
Halley, S. C.	Fort Collins	Larimer	Howard, J. F.	Denver	Denver
Halley, W. H.	Denver	Denver	Howard, T. Leon	Denver	Denver
Halsted, F. S.	Denver	Denver	Howell, J. D.	Berthoud	Larimer
Ham, Judson B.	Denver	Denver	Howell, W. C.	Colorado Springs	El Paso
Hammil, John P.	Denver	Denver	Hoyt, Ralph W.	Denver	Denver
Haney, J. R.	Colorado Springs	El Paso	Hudson, R.	Denver	Denver
Hanford, P. O.	Colorado Springs	El Paso	Huelsmann, L. C.	Colorado Springs	El Paso
Hanson, K. K.	Grand Junction	Mesa	Hummel, E. P.	Sterling	Northeast
Hardesty, W. B.	Berthoud	Larimer	Humphrey, Fred A.	Wellington	Larimer
Hards, I. B.	Tollerburg	Las Animas	Hutchinson, Wm.	Pueblo	Pueblo
Hardy, James O.	Las Animas	Otero	Hutton, Jack G.	Denver	Denver
Hargreaves, O. C.	Denver	Denver	Hutton, V. A.	Florence	Fremont
Harmer, W. W.	Greeley	Weld	Inglis, John	Denver	Denver
Harris, Allen H.	Denver	Denver	Ingraham, C. B.	Denver	Denver
Harris, C. E.	Woodman	El Paso	Irwin, Robert S.	Denver	Denver
Harrison, Fleet H.	Minden, Nevada	Denver	Jackson, B. F.	Pagosa Springs	San Juan
Hart, J. F.	Julesburg	Northeast	Jackson, Edward	Denver	Denver

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Jackson, F. A.	Salida	Chaffee	Lehan, J. W.	Greeley	Weld
Jaeger, Chas.	Denver	Denver	Lennox, P. M.	Colorado Springs	El Paso
Jaeger, J. R.	Denver	Denver	LeRossignol, W. J.	Denver	Denver
Jaffa, B. B.	Denver	Denver	Levin, O. S.	Denver	Denver
Jayne, W. A.	Denver	Denver	Levine, S. J.	Grover	Weld
Jeffery, J. E.	Ordway	Otero	Levy, Maurice	Denver	Denver
Jernigan, V. J.	Longmont	Boulder	Levy, Robt.	Denver	Denver
John, Grant H.	Englewood	Denver	Lewis, G. B.	Denver	Denver
Johnson, E. E.	Cortez	San Juan	Lewis, Robert	Denver	Denver
Johnson, Geo. S.	Denver	Denver	Lewis, W. B.	Denver	Denver
Johnson, Harry A.	Fort Morgan	Morgan	Lewis, W. H.	Hotchkiss	Delta
Johnson, Margaret	Boulder	Boulder	Lewis, W. H.	Pueblo	Pueblo
Johnson, Ross W.	Denver	Denver	Leyda, James H.	Denver	Denver
Johnston, R. S.	La Junta	Otero	Libby, Geo. F.	Denver	Denver
Johnston, W. S.	Pueblo	Pueblo	Liddle, E. B.	Colorado Springs	El Paso
Jones, L. L.	Boulder	Boulder	Likes, L. E.	Lamar	Prowers
Jones, S. Fosdick	Denver	Denver	Lilienthal, Samuel	Denver	Denver
Jones, Vera H.	Denver	Denver	Lincoln, C. L., Jr.	Denver	Denver
Jones, Wm. W.	Denver	Denver	Lingenfelter, G. P.	Denver	Denver
Joslyn, S. A.	Loveland	Larimer	Lingenfelter, H. A.	Durango	San Juan
Joy, Homer T.	Colorado Springs	El Paso	Lipscomb, J. M.	Denver	Denver
Katzman, Maurice	Denver	Denver	Little, Lowell	Ft. Collins	Larimer
Keir, F. E.	La Junta	Otero	Little, W. T.	Canon City	Fremont
Keller, W. C.	Genoa	Kit Carson	Lockard, Lorenzo B.	Denver	Denver
*Kelly, John P.	Golden	Denver	Lockwood, C. E.	Olathe	Montrose
Kelsey, Otis H.	Denver	Denver	Lockwood, F. W.	Fort Morgan	Morgan
Kemble, Earl W.	Golden	Denver	Löf, A. J. O.	Denver	Denver
Kemper, C. F.	Denver	Denver	Long, Margaret	Denver	Denver
Kennedy, Arthur L.	Denver	Denver	Loomis, P. A.	Colorado Springs	El Paso
Kennedy, Geo. A.	Limon	Denver	Lorber, M. B.	Denver	Denver
Kenney, F. W.	Denver	Denver	Lorimer, Hugh	Towner	Pueblo
Kent, Geo. B.	Denver	Denver	Loud, Norman W.	Colorado Springs	El Paso
Kent, Wallace C.	Denver	Denver	Love, Tracy R.	Denver	Denver
Kern, B. F.	Platteville	Weld	Low, H. T.	Pueblo	Pueblo
Kettlekamp, Fred O.	Colorado Springs	El Paso	Lowen, Chas. J.	Denver	Denver
Kickland, W. A.	Fort Collins	Larimer	Lowther, R. R.	Denver	Denver
Killough, H. B.	Pueblo	Pueblo	Lubeley, L. F.	Denver	Denver
King, W. W.	Denver	Denver	Luqueer, F. A.	Pueblo	Pueblo
Kinney, J. E.	Denver	Denver	Lusby, A. C.	Brush	Morgan
Kinzie, J. W.	Haxtum	Northeast	Lux, L. L.	Greeley	Weld
Kleiner, Moses	Denver	Denver	Lynch, E. B.	Canon City	Fremont
Knoch, N. H.	Denver	Denver	Macomber, D. W.	Denver	Denver
Knott, Isaiah	Montrose	Montrose	Macomber, Geo. N.	Denver	Denver
Knowles, E. W.	Greeley	Weld	Macomber, H. G.	Denver	Denver
Knowles, T. R.	Colorado Springs	El Paso	Madden, J. H.	Colorado Springs	El Paso
Knuckey, C. T.	Lamar	Prowers	Madler, N. A.	Greeley	Weld
Koplowitz, J. E.	Rico	Garfield	Mahoney, J. J.	Colorado Springs	El Paso
Kracaw, A. R.	Denver	Denver	Maier, Frank J.	Denver	Denver
Kretschmer, Otto S.	Denver	Denver	Male, J. T.	Yampa	Northwestern
Kroehler, R. A.	Pueblo	Pueblo	*Mann, Hiram B.	Denver	Denver
Krohn, M. J.	Denver	Denver	Manns, Rudolph	Denver	Denver
Krueger, E. H.	Denver	Denver	Marbourg, E. M.	Colorado Springs	El Paso
Kruse, May B.	Denver	Denver	Markel, Casper	Denver	Denver
Kunitomo, N.	Denver	Denver	Markley, Arthur J.	Denver	Denver
Laff, Herman	Denver	Denver	Marmaduke, C. V.	Pueblo	Pueblo
Lamberton, Robt. F.	Denver	Denver	Martin, W. F.	Colorado Springs	El Paso
Lamme, J. M.	Walsenburg	Huerfano	Mason, Lyman W.	Denver	Denver
Lamme, S. J.	Walsenburg	Huerfano	Masten, A. R.	Wheatridge	Denver
LaMoure, H. A.	Pueblo	Pueblo	Mathews, P. G.	Walsenburg	Huerfano
Lane, Harold C.	Denver	Denver	Matlack, J. A.	Longmont	Boulder
Lang, Ray	Denver	Denver	Matson, Wm. F.	Denver	Denver
Langdon, E. E.	Victor	Denver	*Matthews, B. H.	Denver	Denver
Lannon, A. R.	Denver	Denver	Maul, H. G.	Denver	Denver
Larimer, G. W.	Salida	Chaffee	Maul, R. F.	Denver	Denver
Larson, J. H.	Wray	Mesa	Maxwell, J. G.	Canon City	Fremont
Lassen, Fritz	Pueblo	Pueblo	Maynard, C. W.	Pueblo	Pueblo
Latta, C. J.	Sterling	Northeast	Maynard, Donald E.	Durango	San Juan
Laverty, Luchis F.	Denver	Denver	McArthur, A. W.	Delta	Delta
Lawson, J. A.	Rocky Ford	Otero	McBride, W. L.	Sterling	Northeast
Leavitt, Byron C.	Millbrook, Mass.	Denver	McCabe, F. H.	Wiley	Prowers
Lee, George F.	Denver	Denver	McCain, A. C.	Ault	Weld
Lee, G. H.	Denver	Denver	McCartin, E. L.	Colorado Springs	El Paso
Lee, L. W.	La Veta	Huerfano	McCarty, D. W.	Berthoud	Larimer
LeFevre, H. W., Jr.	Denver	Denver	McCaw, J. A.	Denver	Denver
Lefurgey, H. C.	Dolores	San Juan	McClanahan, A. C.	Delta	Delta
			McClanahan, R. K.	Colorado Springs	El Paso

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
McClanahan, Z. H.	Colorado Springs	El Paso	Morrow, E. L.	Oak Creek	Northwestern
McClellan, M. A.	Aguilar	Las Animas	Morse, C. E.	La Junta	Otero
McClure, C. O.	Trinidad	Las Animas	Mudd, W. G.	Long Beach, Cal.	Denver
McConnell, J. F.	Colorado Springs	El Paso	Mugrage, E. R.	Denver	Denver
McCorkle, H. B.	Colorado Springs	El Paso	Mumey, Nolie	Denver	Denver
McCrossin, W. P., Jr.	Colorado Springs	El Paso	Munro, E. H.	Grand Junction	Mesa
McDonald, F. J.	Leadville	Lake	Murphey, Bradford J.	Colorado Springs	El Paso
McDonald, R. J.	Leadville	Lake	Murphy, Rex L.	Denver	Denver
McDonald, R. J., Jr.	Denver	Denver	Myers, G. M.	Pueblo	Pueblo
McDonnell, J. J.	Pueblo	Pueblo	Myers, J. T.	Hotchkiss	Delta
McDonough, Frank J.	Gunnison	Chaffee	Naugle, J. E.	Sterling	Northeast
McDonough, J. P.	Gunnison	Chaffee	Neeper, E. R.	Colorado Springs	El Paso
McFadden, J. G.	Loveland	Larimer	Neff, O. S.	Flagler	Kit Carson
McGill, Earl D.	Edgewater	Denver	Nelson, Eli	Sanatorium	Denver
McGovern, B. E.	Colorado Springs	El Paso	Nelson, G. E.	Windsor	Weld
McGraw, H. R.	Denver	Denver	Nelson, Samuel	Pueblo	Pueblo
McHugh, P. J.	Fort Collins	Larimer	Ness, Ragnar J.	Denver	Denver
McIntyre, T. A.	Colorado Springs	El Paso	Newburn, W. L.	Trinidad	Las Animas
McKay, J. H.	Denver	Denver	Newcomer, Elizabeth	Denver	Denver
McKeen, H. R.	Denver	Denver	Newcomer, N. B.	Denver	Denver
McKelvey, S. R.	Denver	Denver	Newland, C. A.	Springfield	Prowers
McKeown, E. E.	Denver	Denver	Newsom, H. G.	Denver	Denver
McKibben, S.	Alamosa	San Luis Valley	Nicoletti, Frank	Pueblo	Pueblo
McKinnie, L. H.	Colorado Springs	El Paso	Nifong, J. D.	Denver	Denver
McLauthlin, C. A.	Denver	Denver	Noonan, G. M.	Walsenburg	Huerfano
McLauthlin, H. W.	Denver	Denver	Norton, D. O.	Fort Collins	Larimer
McNaught, F. H.	Denver	Denver	Nossaman, A. J.	Pagosa Springs	San Juan
Mabree, Don R.	Alamo	Huerfano	O'Byrne, Geo. T.	La Junta	Otero
Main, George C.	Denver	Denver	O'Connor, J. W.	Denver	Denver
Mattison, Percy A.	Denver	Denver	Ogilbee, H. M.	Manitou	El Paso
Mead, Ella A.	Greeley	Weld	Ohmart, W. A.	Denver	Denver
Meade, E. E.	Denver	Denver	Olmsted, G. K.	Denver	Denver
Meador, Chas. N.	Denver	Denver	Olson, D. G.	New Raymer	Weld
Means, F. M.	Holyoke	Northeast	Oppenheim, S. M.	Denver	Denver
Menkel, H. C.	Simla, India	Denver	O'Rourke, D. H.	Denver	Denver
Menser, Bert	Denver	Denver	Orr, Jas. S.	Fruita	Mesa
Merriman, Amherst	Pueblo	Pueblo	Orrick, G. W.	Fort Collins	Larimer
Metcalf, A. W.	Denver	Denver	Orsborn, G. E.	Denver	Denver
Metz, C. W.	Denver	Denver	Owens, R. L.	Colorado Springs	El Paso
Miel, Geo. W.	Denver	Denver	Packard, Geo. B., Jr.	Denver	Denver
Mierley, Ira C.	Denver	Denver	Packard, Robt. G.	Denver	Denver
Miles, Amy B.	Boulder	Boulder	Palmer, Donald A.	Denver	Denver
Miles, M. E.	Boulder	Boulder	Palmer, F. E.	Sterling	Northeast
Miller, A. E.	Delta	Delta	Palmer, W. A.	Castle Rock	Denver
Miller, A. H.	Denver	Denver	Parker, H. M.	Sedgwick	Denver
Miller, Eli A.	Denver	Denver	Parker, O. T.	Salida	Chaffee
Miller, L. A.	Colorado Springs	El Paso	Parker, Thadd	Morley	San Luis Valley
Miller, L. I.	Denver	Denver	Parowski, S. A.	Aurora	Denver
Miller, R. B.	Longmont	Boulder	Pate, C. E.	Denver	Denver
Miller, Samuel W.	Denver	Denver	Pattee, J. J.	Pueblo	Pueblo
Mills, F. M.	Denver	Denver	Patterson, J. A.	Colorado Springs	El Paso
Minner, M. G.	Denver	Denver	Patterson, R. F.	Springfield	Prowers
Minnig, Arnold	Denver	Denver	Patterson, W. O.	Pueblo	Pueblo
Mitchell, D. M.	La Salle	Weld	Peavy, I. L.	Sopris	San Juan
Mitchell, L. R.	Eads	Prowers	Peck, G. S.	Denver	Denver
Mitchell, Wm. C.	Denver	Denver	Pecony, Jos. W.	Denver	Denver
Mitchell, W. I.	Berkeley, Cal.	Delta	Peirce, F. J.	Pueblo	Pueblo
Mix, Walter S.	Denver	Denver	Perkins, C. C.	Denver	Denver
Mogan, W. E.	Denver	Denver	Perkins, Earl James	Denver	Denver
Moleen, G. A.	Denver	Denver	Perkins, I. B.	Denver	Denver
Monaghan, D. G.	Denver	Denver	Perrott, E. W., Jr.	Denver	Denver
Monismith, A. F.	Fort Lupton	Weld	Pershing, C. L.	Denver	Denver
Monson, G. L.	Denver	Denver	Pershing, H. T.	Denver	Denver
Montgomery, D. H.	Holyoke	Northeast	Peterson, Edgar A.	Denver	Denver
Mooney, W. E.	Haxtum	Northeast	Peterson, E. H.	Grand Junction	Mesa
Moore, A. M.	Denver	Denver	Phillips, S. G.	Denver	Denver
Moore, F. R.	Florence	Fremont	Philpott, J. A.	Denver	Denver
Moore, G. C.	Littleton	Arapahoe	Philpott, O. S.	Denver	Denver
Moore, J. W.	Denver	Denver	Pipkin, G. P.	Pueblo	Pueblo
Morehouse, J. A.	Sterling	Northeast	Pitney, Orville	Cheraw	Otero
Morgan, J. W.	Denver	Denver	Plumb, Carl W.	Grand Junction	Mesa
Morian, C. H.	Denver	Denver	Poley, C. W.	Boulder	Boulder
Morning, J. F.	Denver	Denver	Pollard, J. W.	Denver	Denver
Morrill, E. L.	Fort Collins	Larimer	Pollock, C. R.	Denver	Denver
Morrison, C. S.	Colorado Springs	El Paso	Porter, R. B.	Glenwood Springs	Garfield
Morrison, R. G.	Denver	Denver			

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Porter, V. W.	Lafayette	Boulder	Sears, Thad P.	Denver	Denver
Pothuisje, P. J.	Denver	Denver	Sedwick, Wm. A.	Denver	Denver
Powell, Cuthbert	Denver	Denver	Seebass, A. R.	Denver	Denver
Powell, Henry M.	Colorado Springs	El Paso	Sells, Virgil E.	Denver	Denver
Pratt, Elsie S.	Denver	Denver	Senger, Wm.	Pueblo	Pueblo
Prewitt, Francis E.	Denver	Denver	Sevier, Charles E.	Denver	Denver
Prey, Duval	Denver	Denver	Sevier, J. A.	Colorado Springs	El Paso
*Price, Evelyn B.	Pueblo	Pueblo	Sewall, Henry	Denver	Denver
Price, Ligon	Denver	Denver	Shafer, Harry S.	Denver	Denver
Price, R. C.	Denver	Denver	Shaffer, E. G.	Delta	Delta
Prinzing, J. F.	Denver	Denver	Sharpley, W. H.	Denver	Denver
Purcell, James W.	Denver	Denver	Shea, R. M.	Denver	Denver
Queal, E. B.	Boulder	Boulder	Sherman, E. M.	Holly	Prowers
Ramsey, R. T.	Denver	Denver	Shields, J. M.	Denver	Denver
Ranger, L. H.	Colorado Springs	El Paso	Shippey, O. P.	Saguache	San Luis Valley
Ranson, J. R.	Denver	Denver	Shivers, M. O.	Colorado Springs	El Paso
Raring, L. M.	Denver	Denver	Shollenberger, C. F.	Denver	Denver
Redd, Rufus K.	Pueblo	Pueblo	Shopshire, J. W.	Pueblo	Pueblo
Reed, C. W.	Grand Junction	Mesa	Shoun, D. A.	Canon City	Fremont
Reed, Marvin W.	Denver	Denver	Shultz, W. M.	Central City	Fremont
Reed, W. K.	Boulder	Boulder	Sickenberger, J. U.	Grand Junction	Mesa
Reed, W. W.	Boulder	Boulder	Sidwell, C. E.	Longmont	Boulder
Rees, Maurice	Denver	Denver	Simon, John	Englewood	Arapahoe
Reid, Henry S.	Estes Park	Denver	Simon, Saling	Denver	Denver
Reilly, Joseph John	Denver	Denver	Sims, H. J.	Littleton	Arapahoe
Rensch, Otto B.	Silverton	San Juan	Singer, W. F.	Pueblo	Pueblo
Replogle, B. F.	Fort Collins	Larimer	Skinner, M. G.	Washington, D. C.	Denver
Rice, Geo. Ernest	Pueblo	Pueblo	Sloan, W. W.	Mt. Harris	Northwestern
Rich, W. F.	Pueblo	Pueblo	Smith, A. E.	Craig	Denver
Richards, D. F.	Denver	Denver	Smith, A. S.	Colorado Springs	El Paso
Richardson, H. L.	Washington, D. C.	El Paso	Smith, C. A.	Monte Vista	San Luis Valley
Richie, L. T.	Trinidad	Las Animas	Smith, Chas. D.	Kline	San Juan
Richmond, C. E.	Colorado Springs	El Paso	Smith, Fisher Elmus	Denver	Denver
Rilance, Chas. D.	Denver	Denver	Smith, H. A.	Delta	Delta
Ringle, C. A.	Greeley	Weld	Smith, R. G.	Denver	Denver
Ritterspach, F. J.	Brighton	Denver	Smith, W. A.	Colorado Springs	El Paso
Robb, F. C.	Denver	Denver	Snair, W. L.	Louisville	Boulder
Robb, Wm. J.	Denver	Denver	Snedec, J. F.	Pueblo	Pueblo
Robe, R. C.	Pueblo	Pueblo	Snyder, H. W.	Denver	Denver
Roberts, J. O.	Denver	Denver	Soland, Louis W.	Denver	Denver
Roberts, W.	Denver	Denver	Sommer, Henry O.	Denver	Denver
Roberts, Wm. J.	Minneapolis, Minn.	Denver	Sorensen, George	La Junta	Otero
Robbins, A. W.	Durango	San Juan	Spangleberger, M. A.	Denver	Denver
Robinson, Louise G.	Golden	Denver	Spaulding, W. F.	Greeley	Weld
Robinson, E. F.	Denver	Denver	Speck, Richard T.	McPhee	Denver
Robinson, Jas. M.	Denver	Denver	Spencer, F. R.	Boulder	Boulder
Rochelle, Mary Jane	Boulder	Boulder	Spicer, Chas. M.	Denver	Denver
Roe, John F.	Denver	Denver	Spitzer, W. M.	Denver	Denver
Rogers, F. E.	Denver	Denver	Sprecher, Geo. W.	Brush	Northwest
Root, M. R.	Denver	Denver	Spring, John A.	Montrose	Montrose
Rothrock, F. B.	Colorado Springs	El Paso	Staack, Felix	Denver	Denver
Rothwell, W. D.	Denver	Denver	Stahl, Arthur W.	Denver	Denver
Ruegnitz, L. H.	Denver	Denver	Stains, Minnie E.	Colorado Springs	El Paso
Rummell, R. J.	Lamar	Prowers	Stander, T. C.	Denver	Denver
Rupert, L. E.	Florence	Fremont	Stanley, A. F.	Rouse	Huerfano
Rusk, H. S.	Pueblo	Pueblo	Staunton, A. G.	Denver	Denver
Russell, James E., Jr.	Denver	Denver	Stein, H. B.	Denver	Denver
Ryan, J. G.	Denver	Denver	Steinberg, B. M.	Denver	Denver
Ryder, Charles	Colorado Springs	El Paso	Steinhardt, E. H.	Pueblo	Pueblo
*Sadler, E. L.	Fort Collins	Larimer	Stemen, W. E.	Detroit, Mich.	Denver
Safarik, L. R.	Denver	Denver	Stephenson, F. B.	Denver	Denver
Salisbury, E. I.	Marion, Ohio	Denver	Stevens, F. T.	Colorado Springs	El Paso
Salsbury, C. R.	Pueblo	Pueblo	Stewart, M. J.	Denver	Larimer
Sams, Louis V.	Denver	Denver	Stickles, Albert	La Junta	Otero
Sands, G. M.	Rifle	Garfield	Stiles, Geo. Whitfield	Denver	Denver
Schachet, Reuben	Denver	Denver	Stockham, A. H.	Delta	Delta
Schaefer, S. W.	Colorado Springs	El Paso	Stoddard, T. A.	Pueblo	Pueblo
Schermerhorn, F.	Montrose	Montrose	Stong, Elliott S.	Grand Junction	Mesa
Scherrer, E. A.	Denver	Denver	Stough, C. F.	Colorado Springs	El Paso
Schoen, W. A.	Greeley	Weld	Stratton, Mary R.	Denver	Denver
Schroeder, R. H.	Denver	Denver	Streamer, C. W.	Pueblo	Pueblo
Schultz, H. H.	Woodman	El Paso	Strickler, D. A.	Denver	Denver
Schoonover, John A.	Denver	Denver	Strong, J. C.	Leadville	Lake
Schwatt, Herman	Denver	Denver	Strong, Judd	Pueblo	Pueblo
Schwer, J. L.	Pueblo	Pueblo	Struthers, J. E.	Denver	Denver

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Stubbs, A. L.	La Junta	Otero	Watson, W. V.	Plateau City	Mesa
Stubbs, J. E.	La Junta	Otero	Wear, H. H.	Denver	Denver
Stuver, H. W.	Denver	Denver	Weatherford, J. E.	Denver	Denver
Sunderland, O. R.	East Portal	Denver	Weaver, Florence R.	Boulder	Boulder
Sunderland, W. E.	Denver	Denver	Weaver, John	Greeley	Weld
Swan, W. H.	Colorado Springs	El Paso	Webb, E. C.	Canon City	Fremont
Swaggart, L. B.	Denver	Denver	Webb, G. B.	Colorado Springs	El Paso
Swenson, R. T.	Broadhead	Las Animas	Weddell, J. N.	DeBeque	Garfield
Swerdfeger, E. B.	Denver	Denver	Wedgewood, Paul E.	Aurora	Denver
Taussig, A. S.	Denver	Denver	Weiner, M.	Denver	Denver
Taylor, A. G.	Grand Junction	Mesa	Weinfeld, Samuel	Denver	Denver
Taylor, Edward E.	Denver	Denver	Weiss, F. H.	Denver	Denver
Taylor, H. L.	Denver	Denver	*Wenk, J. A.	Colorado Springs	El Paso
Taylor, R. R.	Pueblo	Pueblo	West, T. J.	Pasadena, Calif.	Denver
Taylor, T. C.	Fort Collins	Larimer	Wetherill, H. G.	Monterey, Calif.	Denver
Tennant, C. E.	Denver	Denver	Whitaker, H. L.	Denver	Denver
Tepley, L. V.	Denver	Denver	Whitaker, W. O.	Denver	Denver
Thayer, M. D.	Denver	Denver	White, H. T.	Denver	Denver
Thearle, Wm. Henry	Denver	Denver	White, H. W.	Fruita	Mesa
Thomas, Atha	Pueblo	Pueblo	White, J. W.	Pueblo	Pueblo
Thompson, C. W.	Pueblo	Pueblo	White, W. J.	Longmont	Boulder
Thompson, David	Denver	Denver	Whitehead, R. W.	Denver	Denver
Thompson, D. G.	Trinidad	Las Animas	Whiteley, P. W.	Denver	Denver
Thompson, J. W.	Pueblo	Pueblo	Whitney, H. B.	Denver	Denver
Thompson, Lester E.	Pueblo	Pueblo	Whittaker, D. L.	Hayden	Northwestern
Thompson, Lewis N.	Granada	Prowers	Wiest, Newton	Denver	Denver
Thompson, N. A.	Denver	Denver	Wilcox, H. W.	Denver	Denver
Thompson, W. E.	Greeley	Weld	Wilcox, Sarah C.	Denver	Denver
Threlkeld, Richard L.	Denver	Denver	Wilkinson, W. L.	La Veta	Huerfano
Thulin, H. F.	Denver	Denver	Willett, F. E.	Steamboat Springs	Northwestern
Thygeson, Phillips	Denver	Denver			
Tidd, C. H.	Telluride	Delta			
Timmons, E. L.	Colorado Springs	El Paso	Williams, A. F.	Fort Morgan	Morgan
Tirador, P. A.	Pueblo	Pueblo	Williams, A. H.	Denver	Denver
Tower, F. A.	Denver	Denver	Williams, G. S.	Lamar	Prowers
Townsend, Guy W.	Denver	Denver	Williams, H. L.	Flagler	Kit Carson
Tremaine, Harmon	Boise, Idaho	Denver	Williams, James E.	Denver	Denver
Triplett, T. A.	Denver	Denver	Williams, Judson	Colorado Springs	El Paso
Tripp, Clifford I.	Sterling	Northeast	Williams, N. C.	Denver	Denver
Trotter, Jay R.	Mancos	San Juan	Williams, S.	Denver	Denver
Troute, F. R.	Englewood	Denver	Williams, W. W.	Denver	Denver
Trueblood, Chas.	Monte Vista	San Luis Valley	Williamson, A. R.	Pueblo	Pueblo
Trumbauer, C. A.	Denver	Denver	Willis, C. H.	Denver	Denver
Tubbs, W. R.	Carbondale	Garfield	Wilson, R. E.	Denver	Denver
Tucker, Beverley	Colorado Springs	El Paso	Winemiller, L. H.	Denver	Denver
Turrell, H. C.	Durango	San Juan	Winningham, John J.	Olathe	Montrose
Twining, W. H.	Aspen	Garfield	Winston, A. L.	Colorado Springs	El Paso
Uji, Shigenatsu	Denver	Denver	Winternitz, David	Colorado Springs	El Paso
Ulmer, H. D.	Denver	Denver	Wise, O. C.	Pueblo	Pueblo
Unfug, G. A.	Pueblo	Pueblo	Withers, Sanford	Denver	Denver
Vail, William H.	Denver	Denver	Wolf, J. A.	Denver	Denver
Vanderhoof, D. A.	Colorado Springs	El Paso	Wolf, John G.	Pueblo	Pueblo
VanDerSchow, G. E.	Fowler	Otero	Wolfe, R. E.	Rocky Ford	Otero
Van Landegham, F. P.	Kersey	Weld	Wollenweber, L. C.	Denver	Denver
Van Meter, L. M.	Denver	Denver	Wooley, Lawrence F.	Denver	Denver
Van Meter, S. D.	Denver	Denver	Woodbridge, J. H.	Pueblo	Pueblo
Van Meter, Virginia C.	Denver	Denver	Woodcock, B.	Greeley	Weld
Van Stone, L. M.	Denver	Denver	Woodward, Harry	Colorado Springs	El Paso
Van Stone, W. D.	Denver	Denver	Work, Hubert	Washington, D. C.	Pueblo
Van Zant, C. B.	Denver	Denver	Work, Philip	Denver	Denver
Verity, W. P.	Two Buttes	Prowers	Workman, Cloyd W.	Denver	Denver
Vogt, H. J.	Pueblo	Pueblo	Worthington, A. K.	Denver	Denver
Von Detten, H. J.	Denver	Denver	Wright, M. G.	Denver	Denver
Vroom, J. N.	Denver	Denver	Wright, R. E.	Loveland	Larimer
Wade, L. H.	Denver	Denver	Wyatt, Kon	Canon City	Fremont
Waggener, W. R.	Denver	Denver	Yaker, D. M.	Denver	Denver
Walker, C. E.	Denver	Denver	Yegge, W. B.	Denver	Denver
Wallace, G. C.	Denver	Denver	Yont, Kate	Denver	Denver
Walters, B. F.	Durango	San Juan	Young, H. B.	Denver	Denver
Waring, J. J.	Denver	Denver	Zarit, John	Denver	Denver
Walton, James B.	Denver	Denver	Zillman, O. E.	Manzanola	Otero
Warner, G. R.	Denver	Denver	Zimmerman, F. H.	Pueblo	Pueblo
Waroshill, Alex.	Chandler	Pueblo	Zimmerman, Wm.	Denver	Denver
Wasson, W. W.	Denver	Denver			
Waters, P. A.	Denver	Denver			

*Deceased.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

OFFICERS, 1927-1928**President**, William A. Sedwick, Denver.**President-elect**, Samuel B. Childs, Denver.**Vice-Presidents**, 1st, James M. Lamme, Walsenburg; 2nd, W. B. Hardesty, Berthoud; 3rd, R. H. Finney, Pueblo; 4th, R. B. Porter, Glenwood Springs.**Secretary**, F. B. Stephenson, Denver.**Treasurer**, L. W. Bortree, Colorado Springs.**Delegates to the American Medical Association**: Senior, T. E. Carmody, Denver, term expires 1928; Alternate, Ralph Johnston, La Junta, term expires 1928; Junior, O. M. Gilbert, Boulder, term expires 1929; Alternate, B. B. Blotz, Rocky Ford, term expires 1929.**Councilors:**

	Term expires
District 1. Ella A. Mead, Greeley.....	1930
District 2. G. P. Lingenfelter, Denver.....	1929
District 3. John R. Espey, Trinidad.....	1928
District 4. W. W. Crook, Glenwood Springs.....	1931
District 5. A. W. Robbins, Durango.....	1932

Constituent Societies, Times of Meeting, Secretaries**Arapahoe County**—Last Monday of each month; secretary, B. G. Carson, Englewood.**Boulder County**—Second Thursday; secretary, Margaret Johnson, Boulder.**Chaffee County**—First Tuesday of each month; secretary, G. W. Larimer, Salida.**Delta County**—Last Friday of each month; secretary, Lawrence L. Hick, Delta.**Denver County**—First and third Tuesday of each month; secretary, O. S. Fowler, Denver.**El Paso County**—Second Wednesday of each month; Secy., W. A. Campbell, Jr., Colo. Springs.**Fremont County**—Fourth Monday of each month; secretary, Kon Wyatt, Canon City.**Garfield County**—Last Thursday of each month; secretary, R. B. Porter, Glenwood Springs, Colo.**Huerfano County**—Third Thursday of each month; secretary, J. L. Baca, Walsenburg, Colo.**Kit Carson County**—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.**Lake County**—First Thursday of each month; secretary, J. C. Strong, Leadville.**Larimer County**—First Wednesday of each month; secretary, M. J. Stewart, Loveland.**Las Animas County**—First Friday of each month; secretary, M. C. Albi, Trinidad.**Mesa County**—First Tuesday of each month; secretary, A. G. Taylor, Grand Junction.**Montrose County**—First Thursday of each month; secretary, J. A. Spring, Montrose.**Morgan County**—Time of meeting (not reported); secretary, H. M. Hawthorn, Weldona.**Northeast Colorado**—Second Thursday in each month; secretary, E. P. Hummel, Sterling.**Northwestern Colorado**—Second Thursday of each month; secretary, F. J. Blackmer, Steamboat Springs; E. L. Morrow, Oak Creek.**Otero County**—Second Thursday of each month; secretary, Geo. Sorensen, La Junta.**Prowers County**—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.**Pueblo County**—First and third Tuesday of each month; secretary, J. R. Blalock, Pueblo.**San Juan Medical**—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.**San Luis Valley**—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.**Weld County**—Third Monday of each month; secretary, H. W. Averill, Evans, Colo.**STANDING AND SPECIAL COMMITTEES****Committee on Scientific Program**: J. J. Waring, chairman, Denver; E. D. Downing, Woodmen; Frank R. Spencer, Boulder.**Committee on Credentials**: F. B. Stephenson, chairman, Denver; John P. McDonough, Gunnison; George M. Noonan, Walsenburg.**Committee on Public Policy**: C. F. Kemper, chairman, Denver; Edward Jackson, Denver; Henry Sewall, Denver; John R. Espey, Trinidad; Edward F. Dean, Denver; N. S. Madler, Greeley; Crum Epler, Pueblo.**Committee on Publications**: Charles S. Elder, chairman, Denver; C. S. Bluemel, Denver; George A. Moleen, Denver.**Auditing Committee**: W. K. Reed, chairman, Boulder; O. P. Shippey, Saguache; Chas. J. Lowen, Denver.**Committee on Necrology**: Philip Hillkowitz, chairman, Denver; W. B. Hardesty, Berthoud; C. H. Graves, Canon City.**Committee on Medical Education**: S. Fosdick Jones, chairman, Denver; L. H. McKinnie, Colorado Springs; Chas. N. Meader, Denver.**Committee on Social Medicine**: R. P. Forbes, chairman, Denver; J. R. McDonald, Jr., Denver; B. B. Blotz, Rocky Ford.**Committee on Medical Literature**: W. A. Jayne, chairman, Denver; Gerald B. Webb, Colorado Springs; A. J. Markley, Denver.**Committee on Hospitals**: Maurice Rees, chairman, Denver; O. S. Fowler, Denver; C. O. Giese, Colorado Springs.**Committee on Military Affairs**: Colonel Paul C. Hutton, chairman, Denver; George P. Lingenfelter, Denver; John Bouslog, Denver.**Committee on Mental Hygiene**: F. B. Ebaugh, chairman, Denver; C. S. Bluemel, Denver; Edward Delehanty, Denver; Philip Work, Denver; H. A. LaMoore, Pueblo; Frank T. Stevens, Colorado Springs.**Committee on Periodic Health Examination**: C. E. Harris, chairman, Woodmen; F. M. Heller, Pueblo; J. B. Crouch, Colorado Springs.**Committee on Co-operation With State Pharmaceutical Association**: H. W. Stuver, chairman, Denver; A. F. Erick, Delta; M. D. Brown, Denver.**Committee on Cost of Medical Care**: Maurice Rees, chairman, Denver; James J. Waring, Denver; Frank R. Spencer, Boulder; P. O. Hanford, Colorado Springs; George H. Curfman, Salida.**Committee on Industrial Commission Fees**: Frank W. Kenney, chairman, Denver; F. B. Stephenson, Denver; T. E. Beyer, Denver.**Committee on Selection of An Executive Secretary**: The President, Secretary and Treasurer of the Society with the assistance of such members of the Society as the President deems advisable.**Committee on Finance**: W. A. Jayne, chairman, Denver; C. F. Hegner, Denver; L. W. Bortree, Colorado Springs.**Curator of Exhibits**: E. D. Downing, Woodmen.**Committee on Local Arrangements**: (Will be announced in a later issue of this Journal.)

WYOMING MEDICINE

President, F. A. Mills, M.D., Powell
President-Elect, J. L. Linn, M.D., Lander
Secretary, Earl Whedon, M.D., Sheridan
Treasurer, Evald Olson, M.D., Lovell
Delegate to the A. M. A., Geo. P. Johnston, M.D., Cheyenne
Alternate, J. H. Holland, Evanston
Councilor, H. L. Harvey, Casper
Member of Medical Defense, Earl Whedon, M.D., Sheridan
Fred Horton, M.D., New Castle
George L. Strader, M.D., Cheyenne

EDITOR:
EARL WHEDON, M.D., Sheridan, Wyoming

NEWS NOTES AND COMMENT

A NEW WESTERN DIET FOR CHILDREN

That fads are responsible for a great array of different foods to be fed to infants and children is true. Some one starts to feed this food or that and because of the social position of the child's mother or reputation of the attending physician the food suggested is thereafter fed to all the babies in the neighborhood simply as a fad.

It remains for a young thirteen months Sheridan boy to establish the record for an original diet. Little J. W. S. decided he wanted a change in his food so he looked around the house for something new. He found it all right. Down it went, not content on swallowing one sample, he took two.



In the course of time things began to happen. He had trouble; yes, lots of it. Mamma and papa had trouble, so did good, fat, genial family Dr. Dolan, who attended the case.

Severe pains over the abdomen, lasting for several days. First in the chest then over the stomach and later the bowels and at last the anus. Everything that could be done was lavished on little J. W. S. Then the boy got relief. Everything went fine for a few days and then the symptoms all returned. Eight days after the first relief the second article of this new food appeared. And what do you think it was?

Poker chips! One and one-half inches across. Exactly the same size of a silver dollar.

Some will say that such a feat is impossible, but there is no doubt as to the truth of the above facts.

How the esophagus, the two openings in the stomach, the ileocecal valve and the anus in a thirteen months child could stretch to the diameter of one and one-half inches and not rupture is a question that neither we nor Dr. Dolan can answer. But here is a picture of the little man who established poker chips as a new baby food for western babies.

E. W.

NEWS ITEMS

NORTHWESTERN WYOMING MEDICAL SOCIETY

The Whitlock Hospital at Powell is keeping pace with the general building program of the town, by building on several more rooms, which are needed most of the time, the hospital being full at present. Dr. Victor R. Dakin of Cody is working out plans for a small hospital in this busy oil town. He has the oil companies' contract work.

The scarlet fever epidemic at Cody is gradually yielding to the efforts of the physicians and the Health Department. Only a few cases have been reported in the last two weeks. Only one case of the disease appearing in a child previously vaccinated has been discovered. The diligence of the school nurse has materially aided, both in preventing further spreading of the infection and in convincing certain ones of the public that there was a quarantine and one that had to be respected.

SHERIDAN COUNTY MEDICAL SOCIETY

Dr. V. J. Keating, who is past president of the Wyoming State and Sheridan County Medical Societies and who is now located at 8375 Fountain avenue, Hollywood, California, writes us that he is getting along nicely in his new location. His young son Jack, however, had the misfortune of having his left arm broken below the elbow. Doctor is asking for a transfer card to the California State Medical Society, so it looks like we were going to permanently lose him.

Dr. C. E. Stevenson has recently been confined to his home on account of sickness.

Dr. Andrew F. O'Connor of the U. S. V. Hospital No. 86 at Sheridan was operated on October 31st for appendicitis and is doing nicely.

Dr. N. J. Cohn of the Veterans' Bureau resigned October 15th and has gone to Chicago, his former home, to resume practice.

Dr. Thos. J. Seale of the Veterans' Bureau Hospital No. 86 at Sheridan has resigned and gone to his former home at New Orleans. His plans for the future, however, have not been announced.

Dr. T. J. Swisher, formerly of Rawlins now located in Los Angeles, has recently passed the California State Board of Medical Examiners, but his health is so much better that he may return to Wyoming where he will certainly be welcomed by not only his patients but the doctors as well.

Minutes of the Yellowstone Park Meeting 1927

Yellowstone Park,
August 27, 1928.

House of Delegates called to order at 8:30 p. m. by President-elect Dr. F. A. Mills, in the absence of President Dr. A. P. Kimball.

The following societies were represented:

Fremont County: Drs. E. L. Jewell, J. L. Linn.
Laramie County: Drs. C. Y. Beard, George P. Johnston.

Natrona County: Drs. A. P. Kimball, George C. Smith, Allen McClellan.

Northwestern County: Drs. F. A. Mills, J. D. Lewellen.

Sheridan County: Drs. E. G. Denison, O. L. Veach, Earl Whedon.

Sweetwater County: Drs. J. H. Goodnough.

Uinta County: Dr. J. H. Holliand.

Minutes of the meeting of June 27 and 28, 1927, were read and approved.

TREASURER'S REPORT

Treasurer Evald Olson presented his annual report which is as follows:

"To the officers and members of the Wyoming State Medical Society in convention assembled at Canyon Hote, Yellowstone National Park, your treasurer begs to submit the following report for the year ending August 27, 1928:

GENERAL FUND

Debit

1927		
June 24—Balance in First National Bank	\$	306.53
Checks received from Dr. Whedon from July 9, 1927, to July 25, 1928, inclusive.....		750.00
Credit		
1928		
Aug. 10—19 Vouchers, Nos. 92 and 109, inclusive.....	\$	763.13
Aug. 13—Balance in First National Bank		293.40
	\$1,056.53	\$1,056.53

DEFENSE FUND

Debit

1927		
June 26—Balance	\$	370.90
July 2—One month's interest on Liberty Bond exchanged for U. S. Treasury Bond.....		3.58
July 9—Check received from Dr. Whedon from July 19, 1927, to July 25, 1928.....		750.00
1928		
July 13—U. S. Treasury Bonds Coupons		154.70
Credit		
March 3—Bought U. S. Treasury Bonds	\$	519.61
Balance in First National Bank		759.57
	\$1,279.18	\$1,279.18

LIBERTY BOND ACCOUNT

1927		
June 25—To Balance.....	\$4,145.00	
By one month's interest on Liberty Bond called by the Government and exchanged for U. S. Treasury Bond.....		\$ 3.58

1928		
March 12—To five \$100.00 in U. S. Treasury Bonds, par value	500.00	
Accrued interest	4.08	
Premium	14.53	
Commission	1.00	
July 13—By U. S. Treasury Bond Coupons		154.70
Aug. 13—By balance		4,506.33
	\$4,664.61	\$4,664.61

Balance in First National Bank of Basin, Wyo., of doubtful value	\$	895.83
TOTAL RESOURCES OF THE SOCIETY		
U. S. Treasury Bonds, par value	\$4,500.00	
Premium on U. S. Bonds	6.33	
Balance in First National Bank	1,052.97	
	\$5,559.30	\$5,559.30

Yours truly,
EVALD OLSON,
Treasurer.

Secretary Whedon read his annual report, which is as follows:

SECRETARY'S REPORT

It again becomes my duty as your secretary to make an annual report of the Society for the past year. This being my ninth annual report.

Following the close of the Cheyenne meeting a conference was held with President A. P. Kimball and plans were made for the year's work.

The Constitution says, Sec. 5, "The Council shall provide and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents resulting from the discharge of the duties assigned to them must be paid to the Treasurer of the Association. It shall annually audit the accounts of the Treasurer and Secretary and other agents of the Association and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all publications of the Association during the year and the amount of all other property belonging to the Association under its control, with such suggestions as may be necessary. In the event of a vacancy in the office of the Secretary or of the Treasurer, the Council shall fill the vacancy until the next annual election."

The Council appointed Earl Whedon as editor and named the following assistants:

- Dr. M. J. Nolan, Casper.
- Dr. C. W. Jeffrey, Rawlins.
- Dr. W. W. Horsley, Lovell.
- Dr. J. D. Goodnough, Rock Springs.
- Dr. Geo. L. Strader, Cheyenne.

While it is quite evident from the above quotation from our Constitution that the duty of reporting to the House of Delegates the cost of publications, etc., falls upon the Council, owing to the fact that the members of our Council are separated by so many miles, I take pleasure as

Editor and Secretary in reporting the cost of our State Journal.

You all recall that at the Buffalo meeting of the House of Delegates held June 23, 1925, the question of a Joint State Journal with Colorado was acted upon and its publication was begun with a joint arrangement with the Colorado Medical Society.

Following the Lander meeting the Journal was divided into two separate parts, Colorado having the front part and Wyoming's pages following.

Our arrangements made with the Colorado Society provide for a payment of \$2.50 per year for each member of our Society. Of course this money is taken from the general fund of our Society and this in turn is paid in under the annual dues of our members of \$10.00, five dollars of which goes into the Medical Defense Fund and cannot be used for any other purpose than that of the defense of members in good standing who are found worthy of its defense. When this fund reaches the sum of over \$10,000.00 the surplus is to be turned over to the General Fund.

Since the Cheyenne meeting warrants have been drawn on the General Fund in favor of Colorado Medicine for \$361.59, which is the total cost of our state publication.

What have we received for this sum which represents practically one-fourth of our state dues and receipts? First, every member who has paid his yearly dues has received since their payment, "Colorado Medicine." Not only has he had the benefits of his own State Journal, but has received all the help and inspiration that the best minds in Colorado could give.

Next, the president, officers and members of our own Society have had a journal in which they could report any new or interesting studies or experiences they wished to report. Announcement of programs of our State Meetings and official reports have been printed so that members who were not able to attend the annual meeting of this Society could get at least in part some of the good things which those who were more fortunate and could attend enjoyed at our annual gatherings. This is an important function of the State Journal.

And again it gives up a weapon which we are fortunate in its possession in times of trouble to use to fight with in securing justice to our profession wherever and whenever we are attacked.

We really believe that had we not had this Journal the present "Tri-State Meeting" would never have been held, at least it might have been only an Idaho and Wyoming Meeting.

Through its columns we have tried to stand up for the best traditions of the medical profession and do all in our power to elevate the standing of the medical profession in this, our young state.

To what an extent we have failed you all know, and it is the hope of the editor that one more worthy may be selected by the new council who shall carry on in a truer and greater way as the years roll on, because we feel that never again should our Society be without a State Journal and all that a real State Journal can mean to the members of our Society.

It gives me great pleasure to report total collections since the Cheyenne Meeting of \$1,500.00. This represents 150 membership, eighteen of which were received on the 1927 dues after the Cheyenne Meeting and 132 have paid this year's dues. There are yet fifteen members who paid dues in 1927 who have not yet paid their 1928 membership dues and who I shall be compelled to drop from the rolls of our Society for non-payment of dues. This will also cause them to

lose their membership in the American Medical Association as membership in the State Society is the requirement in order to be a member of the greatest Medical Association in the world. Surely a thing every honorable doctor should desire.

The expenses of the Society since the last meeting were as follows:

Colorado Medicine	\$361.59
Printing	37.00
Bonds of Secretary and Treasurer.....	27.50
Drs. Kimball's & Whedon's expenses trip to Rock Springs.....	48.07
Flowers	21.00
Treasurer's expenses	1.71
Secretary's expenses	266.26

Total expenses for year.....\$761.42

From the above statement of expenses it will be noted that the General Fund is just about holding its own. In other words, our receipts of \$5.00 each paid into the General Fund is used up each year as follows:

Two dollars and fifty cents of each member's \$5.00 goes to pay for his copy of Colorado Medicine and the other \$2.50 is required for printing, bond expenses, State Meetings and expenses of the officers, the heaviest being that of the secretary's office, although the secretary, himself, has never received any salary or pay for his services. The fact that we have a balance of \$293.40 in this fund should be a source of gratification to all members.

The treasurer's report will show a balance of \$5,229.57 in the Medical Defense Fund which speaks volumes for the medical defense part of our Medical Society, and the committee which administers this fund.

The formation of a new county Society in Hot Springs county early in this year marks the total advance in new county societies. Application for the charter for this Society was received May 5, and acted upon by the Council, the same being endorsed by Councilors Drs. C. W. Jeffrey, J. H. Goodnough, Herbert L. Harvey, President Kimball and Secretary Whedon.

This Society used to be a part of the Northwestern Wyoming Medical Society, but owing to its geographical location at one end of the Big Horn Basin, the doctors of Hot Springs county desired to have a local society of their own, which request was granted by the Council.

The following charter members were elected as officers of this new Society:

President—A. G. Hamilton.
Vice President—C. Dana Carter.
Secretary—V. A. Moekler.
Treasurer—J. D. Wilson.

I am sure that the good wishes of the members of the State Society are extended to this new society, and we welcome it into our State Society as our baby member. At the request of the Rock Springs physicians, your president, Dr. A. P. Kimball, and your secretary, visited Rock Springs, Sunday evening, October 2nd, and met with the members of the medical profession residing at and near Rock Springs. The roads were very bad at that time, both going and returning, and although no society was formed at that time, we are hopeful that the trip may lead to the formation of a county society and lead to the standardization of our State Hospital at Rock Springs.

The nurses served refreshments and we enjoyed our visit, although road conditions were far from good.

Your secretary again attended the conference

of state secretaries at the A. M. A. headquarters at Chicago in November. These annual meetings of the secretaries of the different states and editors of the State Journals are financed by the American Medical Association so far as railroad and an allowance of \$5.00 per day for hotel expenses.

Of course this does not cover the entire expense of these trips, but the good accomplished by such meetings is in itself compensation to the ones who attend. It is at these conferences that we make friends and often secure the most valuable papers for our State Meetings by outside men.

The program as presented at these conferences covers a wide range of useful and helpful subjects such as all secretaries and editors have to meet, and helpful discussions enable the secretaries to get the best way of doing their work and in the most approved systems.

There is another important result from these yearly meetings; namely, the contacts that are made by the state officers and the officers and trustees of the American Medical Association.

It's surely very helpful each way, and in my opinion these meetings should be continued each year for the good of all concerned. Of course to the secretaries who live a long way from Chicago it means a loss of time and more expense, but it is worth the sacrifice for the good we get out of these meetings.

In closing I want to report the excellent co-operation that has existed during the past year on the part of all officers of your Society. There has not been a particle of friction or disagreement and to our president we owe a deep debt of gratitude for the excellent services he has gladly rendered at no little loss of time from his own professional business.

At all times he has done everything that anyone could do to upbuild our Society and raise the standard of professional ethics, and by his example the high standards of our Society have been raised even higher.

The Society feels a real loss in having Dr. Kimball move to Utah, but we feel our loss has been Utah's gain.

President-elect Mills and Vice President Linn have also helped on all occasions and they have been worthy of the honors conferred on them by the State Society.

Dr. Evald Olson's services as treasurer have been up to the standard he has already set in past years, and we all know that as long as Evald Olson is treasurer the funds of our Society will be safe and the books in excellent shape.

The following members have died since our last annual meeting:

Dr. James E. Roach of Midwest, Sept. 17, 1927.

Dr. H. E. McCollum of Laramie, Sept. 25, 1927.

Dr. Thomas G. Maghee of Lander, Oct. 6, 1927.

Dr. John Palmer Keller of Douglas, Oct. 12, 1927.

May we pause in our business and stand with bowed heads as a token of our esteem while our thoughts go out in remembrance of these, our absent members.

I wish to thank all the members, not mentioning them by name, who have aided me in the discharge of my duties as secretary and editor in the past year and to freely acknowledge that but for this aid my efforts would have resulted in failure.

That we may enjoy this Tri-State Meeting is every recompense for the efforts expended and with the hope that these three societies may in a few years, say three or five, meet here in these beautiful surroundings and again renew our fel-

lowships, I shall feel that a start has been made for even greater things to come.

EARL WHEDON,
Secretary.

Chair appointed the following special committees:

Resolutions: Drs. J. D. Lewellen, J. H. Goodnough, C. Y. Beard.

Time and Place: Drs. F. A. Mills, M. J. Nolan, J. H. Holland.

Deaths: Drs. Geo. P. Johnston, C. Y. Beard.

Upon motion duly made and carried it was voted that we hold another Tri-State Meeting in the Yellowstone Park in from three to five years, according to the desires of the other societies, and that we express to the Idaho and Montana societies our desire for such a meeting.

Thereupon the meeting adjourned to meet Aug. 28, 1928, at 7:30 p. m.

EARL WHEDON,
Secretary.

Yellowstone Park, Wyo., June 28, 1928.

7:30 p. m.

Adjourned meeting of the House of Delegates called to order by Dr. Kimball. The following delegates were present: Drs. Kimball, Goodnough, Yates, Dale, Smith, Olson, Jeffrey, Johnson, Beard, Denison, Linn, Lewellen and Whedon.

The Auditing Committee, which consists of Drs. Kimball and Goodnough, reported that they had audited the books of the secretary and treasurer and also their reports and found them all correct, and the money and bonds in bank as reported.

Nominations being in order, Dr. Yates nominated Dr. Linn of Lander, president-elect. Dr. Jeffrey of Rawlins seconded the nomination and moved that the secretary cast the unanimous vote of the Society for Dr. Linn. This motion was seconded and carried and the secretary cast the vote for Dr. Linn as president-elect, and the president declared him elected.

Dr. C. W. Jeffrey of Rawlins was elected vice president.

Dr. Evald Olson of Lovell was re-elected treasurer.

Dr. Earl Whedon of Sheridan, re-elected Secretary.

Drs. Fred Horton of Newcastle, Geo. L. Strader of Cheyenne were elected members of the Medical Defense Committee. The secretary being ex-officio a member. Dr. H. L. Harvey of Casper was elected councilor for the three-year term.

Dr. Geo. P. Johnston of Cheyenne was elected delegate to the A. M. A. for two-year term, and Dr. J. H. Holland of Evanston was elected alternate for the same term. Dr. Mills requested that Dr. A. P. Kimball preside as president during the scientific meeting of Wednesday morning.

At the request of Dr. Kimball, Dr. Mills took the chair. Secretary read telegrams from Drs. Keating and Jabez Jackson expressing their sorrow at not being able to attend the meeting, congratulating the Society on holding such a meeting.

Secretary presented the total bills for the Yellowstone meeting, one-third of which amounted to \$58.85, being Wyoming's share of the total expenses.

Upon motion duly carried a warrant was drawn in payment of this bill:

The question of continuing the publication of the joint journal with Colorado was informally discussed and it was recommended by the House that we continue our present arrangements and the councilors were so advised.

Secretary read a letter from Dr. Galen A. Fox of Cheyenne, calling attention to the necessity of a medical section in the State Library at Cheyenne and requested that a special committee be appointed to look into the matter and do what they could to secure action on the part of the state librarian.

Drs. Johnston and Yates supported such a movement and upon motion by Dr. Yates, seconded by Dr. Johnston, and duly carried, the Chair was asked to appoint three members on this committee. Dr. Mills appointed: Drs. Galen A. Fox, Geo. P. Johnston, C. Y. Beard.

The Committee on Time and Place reported to its chairman, Dr. Mills, that they had received invitations from Casper and Sheridan for the 1929 meeting and they recommended that Casper be selected for such a meeting and that the time be left to the decision of the state secretary. This motion was duly carried.

Dr. George P. Johnston, delegate to the A. M. A., reported upon the Minneapolis meeting. Dr. Mills called attention to the Journal Hygeia and advised to do all we can to extend its circulation.

Dr. Olson, state treasurer, brought up the question of investing in other government bonds but no action was taken changing the original instructions and ordering government bonds bought. Thereupon the Society adjourned to meet at 12:30, June 29, 1928.

EARL WHEDON,
Secretary.

Yellowstone Park, June 29, 1928.

12:30 p. m.

Meeting of the House of Delegates called to order by Dr. F. A. Mills, president.

The following members were present: Drs. Mills, Beard, Jeffrey, Linn, Yates, Smith, Kimball and Whedon.

Committee on Deaths made the following report, which report was accepted and ordered spread upon the minutes.

"In the past year four members of the Wyoming State Medical Society have become inactive through death.

The members were: Drs. James E. Roach, Salt Creek; H. S. McCollum, Laramie; Thos. McGhee, Lander; John P. Keller, Douglas.

Of these Thos. McGhee rounded out a full period of life, having been one of the pioneer practitioners of the State. The others were taken in the midst of their periods of activity. All were held in high esteem in their respective communities. It is a privilege of the Wyoming State Medical Society assembled to pay its respect to these men and honor the service they have rendered to the profession and State.

"Be it resolved, That the secretary of the State Medical Society be requested to convey an expression of the sympathy from this organization to the friends of these departed members and, that their memories may be perpetuated, this preamble and resolution be spread on the minutes of the Association."

The Resolutions Committee reported as follows:

"Be it resolved, By the House of Delegates of the Wyoming State Medical Society, that we profess our profound appreciation to the visiting doctors for their most able and interesting papers, given us at this meeting. Be it further

Resolved, That the appreciation of the Society be tendered to Superintendent Albright of the Yellowstone Park, General Superintendent Brown and Manager Larritt of the Canyon Hotel for the courteous treatment and splendid hospitality which we have received. Be it further

Resolved, That we extend to our officers our appreciation for their untiring efforts in making this meeting a success; be it further

Resolved, That we recommend that an effort be made to increase the fees allowed by the State Compensation Department in major hospital cases and that the limit be raised from three to five hundred dollars, this sum to include hospital and medical attention.

Signed by the Committee on Resolutions: Drs. J. D. Lewellen, J. H. Goodnough and C. Y. Beard."

Upon motion duly made and seconded the above resolutions were adopted by the House of Delegates.

Secretary Whedon reported that he had expended \$13.20 for playing cards to be used by the Women's Auxiliary in the evening entertainment, and he suggested that this bill be allowed and an order drawn in its payment and that each visiting lady attending the Auxiliary meeting be presented with a pack of these cards as a souvenir of the Yellowstone Park meeting.

Upon motion made and carried the above suggestions were ordered carried out. It was also moved, seconded and carried that we hold the 1933 meeting in the Yellowstone Park as a joint meeting with Idaho and Montana or either of them co-operating.

Whereupon the House of Delegates adjourned.

(Signed) EARL WHEDON,
Secretary.

OFFICERS OF THE STATE MEDICAL SOCIETY

President—Dr. F. A. Mills	Powell
President-elect, Dr. J. L. Linn	Lander
First Vice President—Dr. C. W. Jeffrey	Rawlins
Secretary—Dr. Earl Whedon	Sheridan
Treasurer—Dr. Evald Olson	Lovell

Medical Defense Committee

Dr. Earl Whedon, Secretary	Sheridan
Dr. Fred Horton	Newcastle
Dr. George L. Strader	Cheyenne
Editor, Wyoming Part of Colorado Medicine	
Dr. Earl Whedon	Sheridan

Councillors

Dr. C. W. Jeffrey	Rawlins
Dr. J. H. Goodnough	Rock Springs
Dr. H. L. Harvey	Casper

Delegate to A. M. A.

Dr. George P. Johnston	Cheyenne
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Alternate to A. M. A.

Dr. J. H. Holland	Evanston
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WYOMING STATE MEDICAL SOCIETY

Name	Address	Society
Anderson, G. M.	Cheyenne	Laramie
Arbogast, H. J.	Rock Springs	Sweetwater
Barbee, Merle	Torrington	State
Barber, Raymond	Rawlins	State
Beard, C. Y.	Cheyenne	Laramie
Beck, F. L.	Cheyenne	Laramie
Bradfield, J. H.	Sheridan	Sheridan
Bryant, W. H.	Casper	Natrona
Carr, J. E.	Sheridan	Sheridan
Carter, C. Dana	Thermopolis	Hot Springs
Chambers, O. C.	Rock Springs	Sweetwater
Clark, P. J.	Powell	Northwestern
Clegg, E. G.	Monarch	Sheridan
Collins, W. H.	Sunrise	Platte
Conway, J. H.	Cheyenne	Laramie
Cotton, Wendell	Edgerton	Natrona
Crandall, Myron L.	Rawlins	State
Crane, R. E.	Sheridan	Sheridan
Croft, E. W.	Lovell	Northwestern
Crowder, E. R.	Worland	Northwestern

Dale, E. E.	Lavoye	Natrona	Phifer, F. W.	Wheatland	Platte
Day, W. R.	Cheyenne	Laramie	Pierce, J. R.	Gebro	Northwestern
Dean, T. A.	Casper	Natrona	Platz, C. H.	Casper	Natrona
Denison, E. G.	Sheridan	Sheridan	Price, J. W.	Laramie	Albany
Dolan, F. A.	Sheridan	Sheridan	Reed, O. C.	Torrington	State
Einhorn, N. H.	Casper	Natrona	Reed, Paul S.	Worland	Northwestern
Finch, Harold	Laramie	Albany	Reeve, Roscoe H.	Casper	Natrona
Fosner, L. E.	Evanson	Uinta	Roberts, W. H.	Sheridan	Sheridan
Fox, G. A.	Cheyenne	Laramie	Sanders, R. H.	Superior	Sweetwater
Fuhrer, J. E.	Reliance	Sweetwater	Savory, G. B.	Cheyenne	Laramie
Gassmann, Fred	Worland	Northwestern	Scheidegger, E. F.	Green River	Sweetwater
Geis, N. C.	Casper	Natrona	Schunk, E. R.	Sheridan	Sheridan
Goldberg, Maurice	Kemmerer	State	Seibel, R. F.	Casper	Natrona
Goodnough, J. H.	Rock Springs	Sweetwater	Shaffer, F. C.	Douglas	State
Gorder, J. W.	Greybull	Northwestern	Shingle, J. D.	Cheyenne	Laramie
Graham, W. A.	Powell	Northwestern	Smith, G. D.	Casper	Natrona
Gray, W. O.	Worland	Northwestern	Smith, E. R.	Wheatland	Platte
Guthrie, J. B.	Cheyenne	Laramie	Smith, W. Francis	Lander	Fremont
Hale, R. W.	Thermopolis	Northwestern	Solier, C. H.	Evanston	Uinta
Hamilton, A. B.	Laramie	Albany	Steffen, W. A.	Sheridan	Sheridan
Hamilton, A. G.	Thermopolis	Hot Springs	Stevenson, C. E.	Sheridan	Sheridan
Hansen, H. P.	Burns	Laramie	Stewart, J. G.	Sheridan	Sheridan
Harris, H. T.	Basin	Northwestern	Strader, G. L.	Cheyenne	Laramie
Harris, C. E.	Basin	Northwestern	Swisher, T. J.	Rawlins	State
Harvey, H. L.	Casper	Natrona	Taggart, A. T.	Parkman	Sheridan
Hassed, W. H.	Cheyenne	Laramie	Tonkin, A. B.	Riverton	Fremont
Henneberry, T. J.	Cheyenne	Laramie	Trueblood, R. C.	Cody	Northwestern
Holland, J. H.	Evanston	Uinta	Turner, E. M.	Laramie	Albany
Horsley, W. W.	Lovell	Northwestern	Veach, O. L.	Sheridan	Sheridan
Horton, F., Sr.	Newcastle	State	Wanner, J. G.	Green River	Sweetwater
Holtz, Paul R.	Lander	Fremont	Wetlaufer, N. R.	Cheyenne	Laramie
Howe, Louis	Cody	Northwestern	Whedon, Earl	Sheridan	Sheridan
Huffman, F. G.	Wheatland	Platte	Whitlock, J. R. A.	Powell	Northwestern
Hunter, J. S.	Gillette	State	Wicks, J. L.	Evanston	Uinta
Jeffrey, C. W.	Rawlins	State	Williams, L. A.	Laramie	Albany
Jewell, E. L.	Shoshoni	Fremont	Wills, C. L.	Parco	State
Johnson, S. W.	Sheridan	Sheridan	Wilmoth, L. H.	Lander	Fremont
Johnson, L. D.	Casper	Natrona	Wilson, J. D.	Grass Creek	Northwestern
Johnston, G. P.	Cheyenne	Laramie	Yates, W. W.	Casper	Natrona
Kamp, J. C.	Casper	Natrona			
Keating, V. J.	Sheridan	Sheridan			
Keith, M. C.	Casper	Natrona			
Kimball, A. P.	Casper	Casper			
Kinney, O. B. C.	Cody	Northwestern			
Knebel, W. J.	Buffalo	State			
Lacey, W. M.	Cheyenne	Laramie			
Lane, A. E.	Laramie	Albany			
Lane, F. M.	Cody	Northwestern			
Lane, Chas. E.	Elk Basin	Northwestern			
Lathrop, H. R.	Casper	Natrona			
Lauzer, E. S.	Rock Springs	Sweetwater			
Leake, R. M.	Laramie	Albany			
Lenz, D. S.	Midwest	Natrona			
Lewellen, J. D.	Cody	Northwestern			
Linn, J. L.	Lander	Fremont			
Lucic, H. L.	Cheyenne	Laramie			
Lusk, W. A.	Chugwater	Platte			
Magrath, F. E.	Cheyenne	Laramie			
Markley, J. P.	Laramie	Albany			
Marshall, R. E.	Sheridan	Sheridan			
Meredith, L. C.	Sheridan	Sheridan			
Metz, Peter F.	Thermopolis	Hot Springs			
Mills, F. A.	Powell	Northwestern			
Mokler, V. A.	Thermopolis	Hot Springs			
Morad, N. E.	Casper	Natrona			
Morris, M. L.	Pine Bluffs	Laramie			
Myre, S. L.	Greybull	Northwestern			
McDermott, W. O.	Casper	Natrona			
McDermott, B. V.	Hanna	State			
McGee, A. R.	Casper	Natrona			
McLellan, A.	Casper	Natrona			
McLellan, Lawrence	Casper	Natrona			
Nelson, N. C.	Cheyenne	Laramie			
Newman, J. R.	Kemmerer	State			
Nolan, M. J.	Casper	Natrona			
Olson, Evald	Lovell	Northwestern			
Pavy, O. S.	McFadden	Albany			

Dr. Evald Olson is looking much improved in health and it now appears his recent operation for mastoid infection will prove entirely successful.

Dr. Emory L. Jewell of Shoshoni had the misfortune to have a leg broken; not by an automobile, but by an outlaw cayuse. No one would have thought anything at all out of the way if Dr. Jewell had been hurt in an automobile accident, because he goes like the very wind and drives over some of the slipperiest roads in the United States, but when it comes to being kicked by a horse, it doesn't sound right. But inasmuch as Mrs. Jewell vouches for the accident, we will surely have to believe it and every member in the State Society extends to the genial doctor his best wishes for an early recovery.

Dr. J. L. Linn, president-elect of the Wyoming State Medical Society, is leaving Lander to take four or five months' post-graduate work in the East. We hope he may be able to get us some interesting accounts of the work he sees while he is away as we believe it the duty of every member in the profession to report new methods and discoveries for the benefit of the rest of the profession, and Dr. Linn is the type of man who will carefully observe and report what he believes to be of interest to the Society.

How Important Is the "Common Cold?"

The New Haven Department of Health reports that over 40,000 school days were lost last year by a total of approximately 7,000 children who were out for periods of three days or more because they had colds.

TUNING IN

A Saner View of Christian Science

The tragedies that have been permitted in the name of Christian Science by its overzealous devotees have largely justified the widespread prejudice against it. The Christian Science Parent Church, the independent minority movement in Christian Science, is endeavoring to bring a new spirit of sanity and common sense into the practice of mental healing. It recognizes the unselfish, humanitarian labors of the medical profession in alleviating human suffering. It likewise recognizes the vital function of spiritual forces in relation to health. It is convinced that there exists a basis of cooperation on which medicine and religion may thrive together for the advancement of world health.

Since Mrs. Eddy's death, Christian Science practice has very largely become a commercialized faith-cure. The record of disease and death among Christian Scientists during the last few years is appalling. Because of a superstition that the use of a drug is an evil and the employment of medical aid tantamount to a confession that Christian Science has failed, the majority of the adherents of that faith turn to medical assistance only as a last resort, usually secretly and with the depressing conviction that they are committing a positive sin. Such an attitude tends to nullify the work of the physician and deplete the patient's mental capacity for recuperation. Frequently the doctor is called only when death is considered imminent, and to prevent, if possible, the embarrassment of an inquest.

These conditions have arisen from a misconception of Christian Science in its larger application. In order to prove to an incredulous world that the body can be healed by Mind, drugs were discarded during the early stages of the movement. Nevertheless, it is a recognized fact in Christian Science that a drug may be the medium through which the common faith and hope of the majority of mankind expresses itself. In the personal experience of Mrs. Eddy there came a time when neither her own nor her followers' unaided faith was sufficient to relieve her of serious suffering. Understanding the power of the faith of the majority of mankind in medical science she decided to utilize it, and gratefully availed herself of the services of reputable physicians on various occasions.

In so doing, she was consistent with her own teaching on the relation of a minority's faith in mind-power to a majority's faith in material means. She was far in advance of her followers' practical application of Mind-Science. Had her example been intelligently followed by her students, Christian Science practice would today hold a higher place in the general estimation of the world.

The Christian Science Parent Church was organized a few years ago under the leadership of Mrs. Annie C. Bill. It has developed branches throughout Great Britain, America, Australia, and elsewhere. Its members have been recruited almost entirely from those who have resigned from the original Christian Science organization after they became convinced that the trend of thought within that body precluded further advancement of Mind-Science.

This organization maintains that the work of the Christian Scientist is limited to the teaching

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* * *

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of spiritual truth, and to removing fear and other unhealthful moral conditions. Its members are forbidden by their Church by-laws to meddle in any way with medical or surgical practice, but must leave such work to those who are qualified and legally authorized for that responsibility. Neither shall a practitioner of this Church render his services unless both patient and attending physician request his aid.

Spiritual healing has a definite place in therapeutic practice. Therefore, in order that it may be utilized under such conditions as will keep it within its proper field and insure the maximum results, we bespeak the intelligent cooperation of the medical fraternity.—Christian Science Watchman.

EPHEDRIN PRODUCTION

Chinese in the famine regions, picking a medicinal herb by the roadsides in return for food, may be the means of relieving the sufferings of large numbers of men and women in other parts of the world, according to reports reaching America from Peking.

The herb, called ephedra (*ma huang*, in Chinese), has of recent years been employed considerably by foreign druggists for making *ephedrin*, a drug indicated for asthma and bronchial complaints. In cooperation with the Peking Union Medical College, the Mosse Memorial Hospital, the North China Diocesan Relief Fund, and other institutions, the China International Famine Relief Commission has adopted the herb-picking scheme of "labor relief" and it is proving helpful.

The Peking and Tientsin Times, in a recent issue, describes the plant and tells of the manner in which the relief work is carried on:

"The herb, which grows wild by the roadside, and in the mountains, is akin to the yew tree and has a pleasant aromatic smell. The relief work consists in engaging the villagers of the district to bring in, for a price somewhat above what the very small local market offers, loads and loads of this *ma huang*. Last year's purchase justified the scheme as non-pauperizing and self-supporting.

"This year 200 tons of the herb were brought in, and that amount practically exhausted the supply within a radius of twenty miles, which is about the limit of the distance which it pays men to transport the herb.

"To see the villagers bringing in their daily cuttings was to make a study in transport. Men's backs and carrying poles, big two-men barrows and little ones, carts large and small, donkeys, cows and camels, all crowded round the gates waiting admission. When the gates were opened, it needed no little organization, and no less use of vocal organs, to sort out the line-up for the weighing of loads, carts in one place, beasts in another, and men separately. Drying, stacking and packing for export were all accomplished by famine labor."

The present is the third consecutive hard year in Shansi province, and the herb picking serves as timely relief. According to the correspondent for the Peking paper, "it has been good to see the appreciation of the men who have earned the relief workers' help in this way."

In Nantung, North Shansi, the district producing the herb, it is stated that American, Canadian and German chemists have been showing a considerable interest in this collection of the herb, which they have begun to study recently. The New York Academy of Medicine states that the drug made from the herb is being used widely in the United States.



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X-RAY EQUIPMENT

Reducing the Medical Course—The Quarter System

At the last meeting of the House of Delegates of the American Medical Association, a resolution was adopted favoring the shortening of the medical course to three years of four quarters each by allowing the student to complete his four medical college years in three calendar years.

Such a plan was presented at the Educational Conference last February by Dr. W. C. Davison, the dean of Duke University School of Medicine. The quarter system was introduced into the University of Chicago by the late President Harper, and constitutes one of the most important contributions to educational procedure.

Dr. Colwell has emphasized the advantages of this system¹ as follows: (a) a larger number of students can be handled; (b) large and expensive teaching plants will be more extensively utilized; (c) the major part of the summer months are utilized, which would otherwise be wasted in the over-long vacation periods; clinical experience can be obtained regarding certain diseases which are more prevalent during the summer than during the regular college session, and (d) the calendar year lends itself admirably to the arrangement of four quarters of twelve weeks each. Any three quarters of nine months, or thirty-six weeks, would properly constitute a college year. Under the present arrangement the majority of medical schools have sessions of not longer than thirty-two or thirty-three weeks, and four such sessions amount to a total of 128 to 132 weeks, which could be completed in three calendar years (156 weeks) and still leave eight weeks each year for vacation time.

Students that have saved this year of time under the quarter system, will have difficulty in seeking registration in sixteen states² having an obstructive clause in their medical practice acts or board rules. The remaining thirty-three states have no such legal restrictions regarding the medical course.

There is some danger in connection with the use of summer sessions, so far as state boards are concerned, in that the administration of the course may not be so thorough as to warrant recognition.

With proper equipment and facilities the plan is logical, and it appears desirable that eventually all state laws may be so modified as to permit medical students to save this year of valuable time if they are physically and educationally able to do so.—Federation Bulletin.

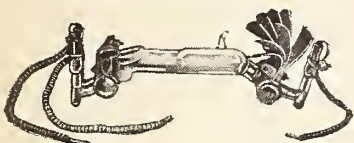
The project of a medical university center, started eighteen years ago by such well-known figures as Dr. Samuel Lambert, Dr. Joseph A. Blake and Dr. Theodore Janeway, is now nearing completion. The Medical Center, New York, was dedicated to the service of humanity and the progress of science on October 12th before many thousands of invited guests. During the spring and summer there have been a succession of removals and openings at the Medical Center. This ceremony marked the beginning of the united efforts as a teaching and research combination. Following the dedicatory services inspection of the College of Physicians and Surgeons, the Vanderbilt Clinic and the School of Dental and Oral Surgery was made. Visitors were not admitted to the Babies' Hospital, the Neurological Institute, or the New York State Psychiatric Institute and Hospital as they are still in the hands of the builder. January 1st is the tentative date made for the occupancy of these buildings.



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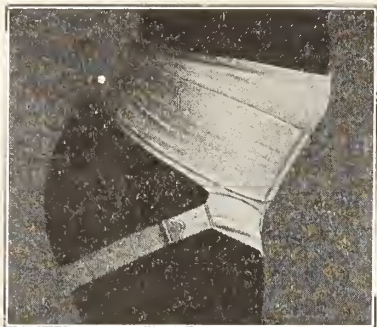
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The Saturday Evening Post on Health

Speaking editorially in support of preventive medicine and public health, the Saturday Evening Post, with its 2,800,000 circulation, has carried a message that must have the widest possible influence. The editorial dwelt on the health advances of the last generation which have added nine years to the span of human life, emphasizing that prolongation of life was the objective of health work rather than simply a reduction in the death rates as expressed in terms of percentage. There was one paragraph, however, which was outstanding in this editorial expression:

"Good housekeepers and good mothers are natural health officers. They can do a world of good by familiarizing themselves with the health work done in the public schools and seeing that it is adequate in scope and thoroughness. Their husbands can preach the extension of preventive work and use their influence to secure suitable appropriations for state and local activities. Newspaper editors have at their command an inexhaustible supply of important material bearing upon local sanitary conditions and the character of public health measures. Progressive young doctors will meet them half way and assist right-thinking reporters in turning out copy which is constructive rather than sensational, and which will be worth while because it will secure definite results."

The Saturday Evening Post has with this definite effort substantially hastened the day when the medical profession can say that nine additional years of life are guaranteed to almost everyone. On the other hand, the editorial is a significant recognition of the health education effort, so abundantly evident all over the United States, that the cause of preventive medicine has made its deepest impression, else it could not command such favorable and distinguished support as that given by this magazine which has the largest circulation of any publication in the world.—The Red Cross Courier.

What About Children and the "Movies?"

How important is the question of children attending the "movies?" Rather so, because of the enormous number attending. In Los Angeles it was found that 60,000 children under the age of 12 were going to the picture shows every week, and in a large group of school children in Kansas, a typically rural state, nearly half of the 8-year-old children and two-thirds of the 14-year-olds went once a week or oftener. These facts indicate the need for regulating indiscriminate attendance by children, for higher standards in the matter of pictures on the part of parents and the general public, and for the cessation of the habit of parking unattended children at the moving-picture theaters, which some parents seem to find an easy way to assure themselves an evening for their own amusement purposes free from responsibility for their offspring.—Children's Bureau.

Supply Human Milk for Babies

Babies deprived of their mother's milk, for whom the services of a wet nurse are not practicable, are now being supplied by the Boston Wet Nurse Directory with human milk obtained from mothers through carefully regulated methods. The demand for this "mothers' milk" is rapidly increasing, and the supply for 1927—almost 174,000 ounces—was nearly twice the amount collected in 1926. Many babies are said to owe their health, if not their lives, to the efficiency of this service.—Children's Bureau.

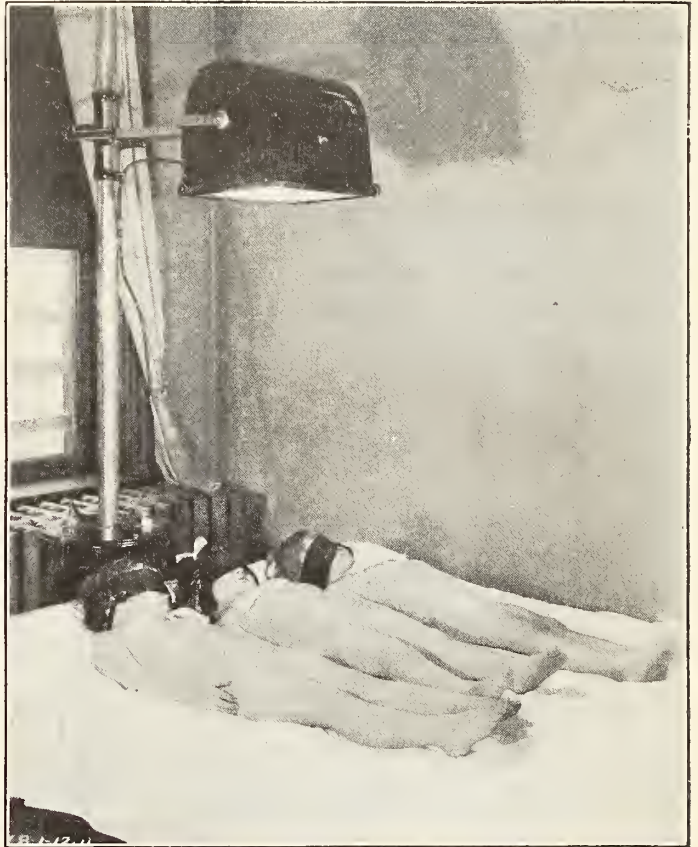
To quote another eminent authority on ultraviolet therapy

"The Quartz Mercury Vapour is the most generally suitable lamp for employment in private practice or in small clinics.

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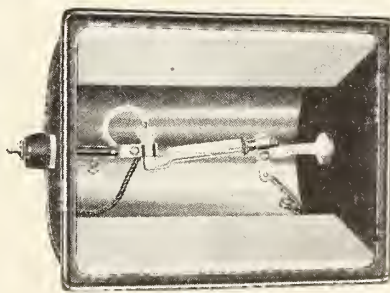
"It is, therefore, not to be wondered at that it has achieved great popularity, and has been very generally advocated and adopted."

—Sir Henry Gauvain, M. D., M. Chir. (Cantab.),
in his introduction to J. Bell Ferguson's "The
Quartz Mercury Vapour Lamp."



SIR HENRY GAUVAIN is known internationally for his contributions to medical literature, particularly with reference to ultraviolet therapy. In England, at Hayling Island and Alton, he has combined the work of Finsen and Rollier, and utilizes *both natural and artificial* sources of light; the artificial source because he realizes that atmospheric conditions in that climate are not comparable to those of a Swiss village some 4700 feet above sea level.

When selecting equipment for ultraviolet therapy, consider the *Uviarc*, as used in all Victor Quartz Mercury Vapor Lamps. The *Uviarc*, or so-called burner, is designed solely for one form of therapy—ultraviolet—and accordingly its spectrum is outstandingly rich in radiations of 3100 Angstrom units or shorter, i. e., falling in that portion of the ultraviolet region



Showing Interior of Reflecting Hood of Victor
Air-Cooled Quartz Lamp.
Note how this design minimizes interference
to the reflection of rays.

where the maximum biologic effects are realized.

Consider, too, the consistent operation of the *Uviarc* for hours at a time without attention; no smoke, no soot, no fire hazard. From the standpoint of economy, consider the large quantity of ultraviolet radiations in proportion to the electrical input, which in turn means also the conservation of time by shortening considerably the treatment period for a given dosage; furthermore, no special wiring is required for its installation.

Write for booklet: "A Few Facts Pertinent to the Consideration
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Safety in Knowledge

Patients may recover without even knowing they are tuberculous; but it is far better that a tuberculous person study the disease in order that he may recover more rapidly and that he may avoid a future breakdown. Knowledge of the disease gives one a feeling of safety, and safety means happiness. A person who has been tuberculous and is well informed on the subject is not often worried about his future. He knows how to avoid trouble, he feels safe, and, as a consequence, is more likely to live a normal and happy life. Patients, taking a rest cure, should learn tuberculosis—learn it well! Traveling about in the dark is an unsafe way to get through life.

Persons with supposedly imaginary troubles are commonly advised to "forget it." Such advice is dangerous. The great evil resulting from the indiscriminate use of the expression—forget it—is that the patient often has at the time not only a serious but actually a fatal disease that the doctor has not discovered.

After a tuberculous patient has taken a rest cure and has gone back to work, his mind begins to build up a barrier to exclude the disagreeable parts of his recent experience. This is normal. Only morbid minds and chronic sympathy seekers continue to dwell on hardships, past or present. The healthy mind forgets disagreeable experiences. For this reason, persons that have been tuberculous often wilfully deny the fact after recovery from the disease. It is commendable self-deception. But they do follow the straight and narrow path, and, should evidence of what they think may be active disease reappear in them, they go at once to their medical attendant for another examination.—Getting Well and Staying Well, John Potts, C. V. Mosby Co.

Health of Self-Supporting College Students

Dr. R. W. Bradshaw, College Physician at Oberlin College, has recently completed a study to determine how the health of the self-supporting student compares with the health of the remainder of the student body. His report of this valuable study is published in full in the Journal of the A. M. A. for June 2, 1928. He finds that the self-supporting men spent 657 days in the hospital per thousand students as compared with the 490 hospital days of the financially independent men.

The self-supporting women were credited with 2,032 hospital days per thousand students and the financially independent women, 1198 hospital days.

Dr. Bradshaw's conclusions are as follows:

"1. The financially handicapped student who earns his way through college may be of greatest value to the world and himself.

"2. His work, his recreation, his environment and his emotional outlook differ from those of his financially independent colleagues.

"3. An analysis of the health records of Oberlin College students for the year 1926-1927 shows a significantly higher percentage of illness among all groups of self-supporting students than in the corresponding financially independent groups.

"4. The factors contributing to the increased morbidity of the self-supporting groups should be studied in detail with a view to reducing the illness in these groups."—National Board Bulletin.

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